

New taxa and combinations in the family Cyperaceae in eastern Australia

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Abstract

Wilson, Karen L. (*Royal Botanic Gardens, Mrs Macquaries Road, Sydney, NSW 2000, Australia*) 1994. *New taxa and combinations in the family Cyperaceae in eastern Australia*. *Telopea* 5(4): 589–625. The following new species are described: *Chorizandra australis*, *Cyperus eglobosus*, *Eleocharis macbarronii*, *Lepidosperma avium*, *L. clipeicola*, *L. evansianum*, *L. latens*, *Schoenus evansianus*, *Uncinia nemoralis*, *U. sulcata*. *Ptilothrix*, gen. nov., replaces *Ptilanthelium* auct. non Steud.; with one species *P. deusta*. The South African species *Mariscus grantii* (which is naturalized in Australia) is transferred to *Cyperus* as *C. vorsteri*, nom. nov. The names *Isolepis gaudichaudiana* and *Lepidosperma gunnii* (syn. *L. lineare* auct. non R. Br.) are revived. The following new combinations are made: *Baumea planifolia*, *Ptilothrix deusta*, *Schoenus lepidosperma*, *S. lepidosperma* subsp. *pachylepis*. Lectotypes are chosen for various names in *Caustis*, *Cladium*, *Isolepis*, *Lepidosperma*, *Ptilothrix* and *Schoenus*. Comments are made on morphological features in *Cyperus*, *Caustis*, *Gahnia*, *Lepidosperma* and *Schoenus*. The spelling of the epithet in *Cyperus haspan* is discussed.

Introduction

For the *Flora of New South Wales* vol. 4 and *Flora of Victoria* vol. 2, there are various taxonomic matters in the family Cyperaceae that need to be dealt with. In some cases, the groups concerned will be treated at greater length elsewhere by me (for example, I am currently completing a revision of the genus *Chorizandra*) but those projects will not be published before these Floras.

All specimens have been seen unless otherwise indicated. The private herbarium of Cliff Beauglehole of Portland, Victoria, is indicated by 'ACB'.

1. *Baumea*

Baumea planifolia (Benth.) K.L. Wilson, comb. et stat. nov.

BASIONYM: *Cladium tetraquetrum* var. *planifolium* Benth., *Fl. Austral.* 7: 407 (1878), as 'var.? *planifolium*'.

TYPE CITATION: 'New South Wales: New England, C. Stuart. Victoria: Goulburn and Upper Hume Rivers, F. Mueller.'

TYPE: NEW SOUTH WALES: Northern Tablelands: New England, C. Stuart; lecto (here chosen) K. This specimen is selected as lectotype since it consists of more material than the other specimen in K (Upper Hume River, Mueller). Both are annotated by Bentham. There are several specimens in MEL labelled with the cited localities but there is no indication that Bentham saw any of them.

Cladium teretifolium var. *asperriumum* Kük., *synon. nov.* (Kükenthal 1942: 169). TYPE: NEW SOUTH WALES: Central Coast: Springwood, *Georgina King*, 1893; holo B (ex MEL). The type was cited by Kükenthal as being in MEL but this seems to have been based on his unwarranted assumption that all specimens that he was sent from MEL or

NSW were duplicates. No duplicate specimen so labelled has been found in MEL.

Perennial with long rhizome. Culms erect, rigid, oval to nearly flat, nodeless or rarely 1-noded, striate, glabrous, scabrous to smooth, 15–65(–120) cm high, 1.2–4.0 mm diam. Leaves basal; blade flat or narrow-rhomboid in cross-section, strongly scabrous, broader and shorter than culms, to 6.5 mm wide; sheath pale brown, dull. Inflorescence ovate to oblong in outline, erect, 4–10(–14) cm long, 1–3.5 cm diam.; lowest involucre bract much shorter than inflorescence. Spikelets numerous, 1-flowered, 3.5–4.5 mm long. Glumes 3 or 4, long-acute with apex often excurved, unevenly coloured pale to mid-red-brown (rarely darker), with margins glabrous or sparsely ciliate; fertile glumes 3.0–3.8 mm long. Anthers 1.2–1.6 mm long, excluding the apical appendage that is 0.3–0.7 mm long. Nut ovoid to ellipsoid, with irregular coarse reticulations or ridges, ± minutely white-papillose between ridges, minutely hispid or papillose at apex, pale to dark brown, 1.7–2.0 mm long, 0.8–1.1 mm diam. Figure 1a–c.

DISTRIBUTION AND ECOLOGY: Grows on higher ranges of the tablelands and coastal ranges south from Blackdown Tableland in Queensland to Victoria; in swamps and near mountain streams, on sandy soils.

NOTES: This taxon was originally described by Bentham as a variety under *Cladium tetraquetrum* Hook. f. (which is now known as *Baumea tetragona* (Labill.) S.T. Blake). These were included in *C. teretifolium* as var. *tetraquetrum* by Kükenthal (1942: 169), who also described a new variety *Cladium teretifolium* var. *asperrimum*, which is here synonymised with *B. planifolia*.

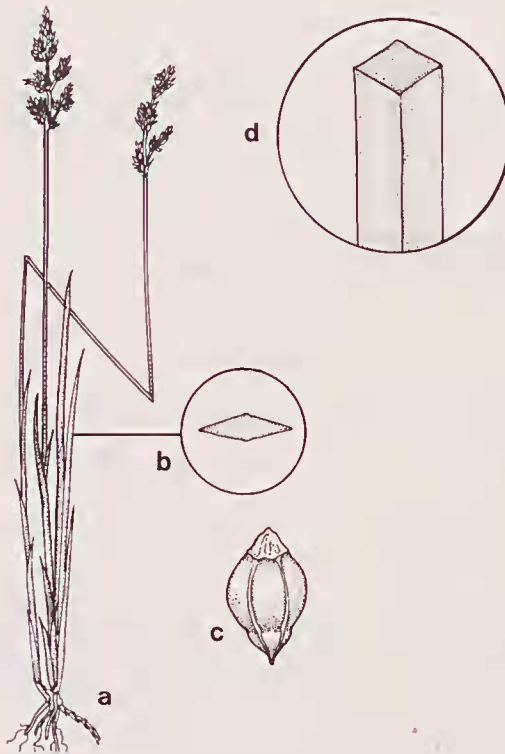


Figure 1. *Baumea planifolia*. a, Habit, X 0.1; b, diagrammatic cross-section of leaf, X 3; c, nut, X 17 (all from McBarron 7327). *B. tetragona*. d, diagrammatic cross-section of leaf, X 6 (from Williamson NSW 19820).

Baumea planifolia differs from *B. tetragona* in its leaf being flat or rhomboid in cross-section (Figure 1b) versus square or rarely narrow-rhomboid in *B. tetragona* (Figure 1d), and in having its culms oval to nearly flat (versus terete to 4-angled). Its leaf sheaths are uniformly pale brown whereas those of *B. tetragona* usually have reddish tinges, and its glumes are paler brown and often narrower than in *B. tetragona*. It often occurs in somewhat drier habitats than *B. tetragona*.

SELECTED SPECIMENS SEEN: QUEENSLAND: Leichhardt: Blackdown Tableland, *Johuson 1106*, Sep 1959 (BRI, K), *Henderson 955*, *Durrington & Sharpe*, Sep 1971 (BRI, NSW). Port Curtis: Kroombit Creek, 5 km SW of Forestry Barracks, Kroombit Tops, *Sharpe 3400*, Dec 1983 (BRI, NSW). Darling Downs: Girraween National Park, *Sharpe 1365, 1367*, Sep 1975 (BRI, NSW).

NEW SOUTH WALES: Central Coast: Bowens Creek gorge, *Evaus*, July 1962 (NSW 140250); Bargo River, 1 mile [1.6 km] SE of Tahmoor, *Constable 6206*, Oct 1965 (NSW, BRI). South Coast: Nullica State Forest, Nethercote Falls, *Albrecht 977*, Sep 1984 (MEL, NSW). Northern Tablelands: Torrington, *Cambage*, Sep 1907 (NSW 73953); Bellangry State Forest 524, Snowy Road (NW of Wauchope), *Cousins*, Apr 1959 (NSW 73954). Central Tablelands: Kandos waterworks dam, Olinda, *Ingrau*, Oct 1961 (NSW 73955). Southern Tablelands: China Wall, Tooma, *McBarron 7327*, Oct 1961 (NSW).

VICTORIA: Midlands: Mt Mitta Mitta Regional Park, *Beauglehole 89348 & Huebner*, Oct 1987 (MEL, AD n.v., BRI, CANB n.v., DNA n.v., NSW); Beechworth township, *McBarron 4672*, June 1950 (BRI, SYD), 4675 (BRI). Eastern Highlands: between Paradise and Little Paradise Falls, S of road to Paradise Falls, *Beauglehole 43770 & Cameron*, Dec 1973 (MEL, NSW). Snow: Upper Livingstone Creek, N of Shanahans, western tributary, c. 23 km SW of Omeo, *Walsh 80/101*, 20 Mar 1980 (MEL). East Gippsland: Sailors Lake, Wulgulmerang, *Beauglehole 36048 & Rogers*, Jan 1971 (MEL, BRI, NSW).

Cladium drummondii lectotypified

Cladium drummondii C.B. Clarke (1908: 91), as 'Drummondii'.

TYPE CITATION: '*Caley*; Swan River, *Drummond*.'

TYPE: WESTERN AUSTRALIA: Swan River, *J. Drummond s.n.*; lecto (here chosen) K; probable isolecto K.

RESIDUAL SYNTYPE: New South Wales: Central Coast: South Head road, *G. Caley*, Nov 1807 (BM).

All cited sheets were labelled as '*Cladium Drummondii* C.B. Clarke ms.' by Clarke but the sheet chosen as lectotype was also labelled by him as 'type'. The lectotype has more mature flowers than the others.

The identity of this taxon has been a puzzle, particularly because Clarke included in it specimens from both eastern and western Australia. The syntypes in BM and K proved to be a mixture of two species. *Caley*'s specimen from New South Wales is referable to *Baumea rubiginosa* (Spreng.) Boeck., apart from the unattached leaf, which is too broad for that species. *Drummond*'s specimens are referable to *Baumea preissii* Nees, as are most details in Clarke's description. I have here lectotypified the name on one of the *Drummond* specimens in K. Since Clarke's name post-dates both of the others, there is no nomenclatural change needed.

2. Carpha

Carpha nivicola F. Muell.

(Mueller 1855a: 34, 1855b: 111). TYPE: NEW SOUTH WALES: Southern Tablelands: Australian Alps, F. Mueller; holo MEL; iso MEL.

C. alpina var. *subacaulis* Kük., **synon. nov.** (Kükenthal 1939: 113). TYPE: NEW SOUTH WALES: Southern Tablelands: Mt Kosciusko, Baumgrenze [tree-line] bis 7000 ft, J.H. Maiden 4, Jan 1899; holo B; iso NSW.

Kükenthal did not regard *C. uivicola* as being different from *C. alpina* R. Br., but he distinguished his variety *subacaulis* on the basis of the culms being very short so that the inflorescences are hidden amongst the leaves, and of the glumes being more acute than in typical *C. alpina*. The type specimen of *C. alpina* var. *subacaulis* could indeed be said to have more acute lower (sterile) glumes than typical *C. alpina*, in that they match those of *C. uivicola*; they are longer and less broadly acute than in *C. alpina*. The very short culms do not seem significant; all other characters of the type match those of *C. uivicola*, and the short culms may be merely a response to extreme habitat conditions.

3. Caustis

Caustis flexuosa R. Br.

(Brown 1810: 239). TYPE: NEW SOUTH WALES: Central Coast: Port Jackson, R. Brown (Bennett 6065), 1802–1805; lecto (here chosen) BM; probable isolecto B, BM, G, K, P. There are several relevant sheets in BM, bearing similar material with flexuose branches. The lectotype sheet bears a label with 'Sclerioides flexuosa' in Brown's script. Other sheets include another labelled Bennett 6065 (which also bears a field label with a manuscript name), a Public Collection sheet chosen by Brown, and a sheet labelled on the reverse (?by Dryander) 'Port Jackson'.

C. restiacea F. Muell. ex Benth. (Bentham 1878: 421). TYPE CITATION: NEW SOUTH WALES: Berrima, Miss Calvert; Victoria: Grampians, F. Mueller. TYPE: VICTORIA: Grampians, F. Mueller; lecto (here chosen) K; probable isolecto MEL. Material of both syntypes is present in K and MEL but the apparent duplicates in MEL are not annotated as having been seen by Bentham. An indication of Mueller's intended application of his manuscript name is given by his having named only his own collection in MEL as *C. restiacea*; the Calvert collection was named by him merely as *Caustis*. In K, there is a sheet of the Mueller collection (with a label written by Mueller but giving the name as *C. flexuosa* not *C. restiacea*), which is that chosen here as lectotype. This has mature inflorescences that are less flexuose than in typical *C. flexuosa*, as described in the prologue. A second sheet in K bears specimens of the two syntypes with labels in Bentham's script. However, the two labels appear to have been switched; the less curly inflorescences seen on the other Mueller sheet in K (and the Mueller sheets in MEL) are said to be the Calvert collection and the more curly inflorescences are said to be those of the Mueller collection.

C. flexuosa var. *rectiramulosa* Kük., **synon. nov.** (Kükenthal 1944: 96). TYPE: VICTORIA: Wimmera, F. Reader, 1893; holo B. There is apparently no duplicate of this in MEL.

Bentham (1878) described *Caustis restiacea* as resembling *C. flexuosa* in some features and *C. recurvata* in others, while suggesting that it might be merely a variety of the latter. However, his interpretation cannot be supported, as already noted by Blake (1943: 70).

Bentham rightly noted that plants of *C. restiacea* are much more slender than those of *C. recurvata*, in which feature they are similar to *C. flexuosa*. He regarded *C. recurvata* and *C. restiacea* as having unisexual inflorescences on the same rhizome whereas *C. flexuosa* had uniformly bisexual spikelets. However, he was led astray by the varying growth patterns in this genus, in which different stages of growth can have very different-looking inflorescences, as seen at the extreme in *C. recurvata*. The inflorescences in other species such as *C. flexuosa* are not so obviously different at different stages of development. As is common in Cyperaceae, plants in this genus are polygamous, with each spikelet usually having a male lower flower and a bisexual or female upper flower. However, as pointed out by Blake (1943), plants may appear monoecious since the younger, less expanded inflorescences are functionally male (with the anthers fully developed only in the lower flowers) while the older inflorescences with longer branches and often more numerous sterile ultimate branches are functionally female or bisexual with the upper flower producing a nut. Each rhizome supports culms of different ages with reduced 'male' inflorescences through to more open nut-bearing inflorescences.

As a further difference between the three supposed species in question, Bentham recorded *C. restiacea* as having 4 stamens in each flower, *C. recurvata* 5 or 6, and *C. flexuosa* 3 stamens. *C. recurvata* does indeed have 5 or 6 stamens. However, material referable to typical *C. flexuosa* (that is, plants with rather flexuose branches) varies from the usual 3 stamens in both flowers of a spikelet to 4 in the lower flower and 3 in the upper (e.g. *Salasoo* 3146, Sassafras, N.S.W.), or to 4 in both flowers (e.g. *Beau-glehole* 38188, Traralgon, Vic.). Similar variation in stamen number is seen in material referable to *C. restiacea* from western Victoria, indicating that stamen number cannot be used to separate these two taxa.

In fact, the only noticeable difference between typical *C. flexuosa* and *C. restiacea* is the branching of the inflorescence. In *C. flexuosa* the branches are more flexuose, sterile leaf-like branches are more common, and the branches are uniformly longer and clustered more strongly than in 'typical' *C. restiacea*. Most specimens from western and central Victoria would be referable to *C. restiacea* on these criteria. However, variation in branching over the geographical range from central Queensland to the Grampians is such that one can find both extremes of branching scattered over the geographical range. Thus, I agree with Blake's tentative suggestion that *C. restiacea* should be included within *C. flexuosa*.

Kükenthal (1944) had not seen the type material of *C. restiacea* and described the less-flexuose material as *C. flexuosa* var. *rectiramulosa*, a name also here placed in the synonymy of *C. flexuosa*.

Caustis recurvata Spreng.

(Sprengel 1827: 26). TYPE: NEW SOUTH WALES: *Sieber Agrostotheca* no. 35; holo B? n.v.; iso FI, G, K, MEL.

C. recurvata var. *foliosa* Kük., *synon. nov.* (Kükenthal 1944: 98). TYPE: QUEENSLAND: Moreton: Caloundra, S.T. *Blake* 13863, 6 November 1938; holo B; iso BRI, K, NSW.

As Blake (1943: 70) pointed out, young shoots of *C. recurvata* (that is, var. *recurvata*) sometimes have well-developed lower leaves (seen, for example, in *Wilson* 4046 from Wardell, and *Johnson & Constable NSW* 123137 from Lennox Head) as do vigorous re-growth shoots of older plants after fire. Kükenthal's variety is based on juvenile plants of var. *recurvata*. Young plants of *C. recurvata* var. *hirsuta*, a taxon apparently confined to Royal National Park south of Sydney, can be similarly leafy (e.g. *Wilson* 8622).

4. *Chorizandra*

Chorizandra australis K.L. Wilson, sp. nov.

C. cymbariae affinis sed omnibus partibus robustioribus, culmis non verruculosus, inflorescentia plusminusve globosa, marginibus bracteae inflorescentiae basi angustioribus non vel vix rubropunctatis, differt.

TYPE: SOUTH AUSTRALIA: South-eastern: Honans Scrub, S of Glencoe, 10.5 km N of Princes Highway, 21 km NW of junction of Glencoe–Millicent–Mount Gambier roads, A.C. Beanglehole 68255 & B.A. Mitchell, 27 April 1980; holo NSW; iso ACB, AD, BRI, CANB, CHR, K, L, MEL, MO, NY, P, US.

Tall perennial, with short, tough rhizome. Culms 90–220 cm high, 4–9 mm diam., unitubulose and hollow above (transverse septa occasionally obvious externally near apex), uni- or pluritubulose below, longitudinally striate but not verruculose, yellow-green. Inner leaf blades to 5 cm long, much shorter and more slender than culms, unitubulose; sheaths loose, pale brown to purplish, to 38 cm long. Lowest involucre bract to 20 cm long, unitubulose; margins of base hyaline to yellow-chartaceous, not or occasionally slightly red-dotted, not enlarged and not sheathing inflorescence. Inflorescence globose to hemispherical, 10–18 mm diam., with numerous pseudospikelets; core solid, globose to hemispherical. Pseudospikelets with 14–16 floral scales; scales 5.0–6.0 mm long, to 2.5 mm wide, spatulate to ligulate, mostly \pm keeled near apex, dark red-brown towards apex, glabrous; apex \pm praemorse, acute to obtuse. Stamens 8–13; anthers 2.0–3.5 mm long, excluding the apical appendage that is 0.1–0.2 mm long. Style 2–4-fid. Fruit obovoid, with 6–8 complete longitudinal ridges and fainter secondary longitudinal and transverse ridges, 3.0–4.5 mm long, 2.0–2.7 mm diam., pale red-brown to grey-brown. Figure 2a, b.

DISTRIBUTION AND ECOLOGY: Grows in Victoria, Tasmania and the South-eastern region of South Australia; in swamps and around waterholes.

DERIVATION OF EPITHET: From the Latin *australis*, southern, in reference to the species' distribution in southern Australia.

NOTES: Specimens of this species have mostly been identified as *C. cymbaria* in herbaria and by Rodway (1903: 244).

C. australis differs from *C. cymbaria* in being generally more robust. The culms flatten much more easily when pressed and dried than those of *C. cymbaria*. The culm surface is not verruculose, but rarely it is somewhat roughened; however, the longitudinal striations are always finer and less raised than in *C. cymbaria*. The inflorescence is globose to hemispherical in shape, never elongated as in *C. cymbaria*, and the solid core is raised and globose to hemispherical; the base of the main inflorescence bract is not or scarcely red-dotted, and is not as broad relative to the overall size of the inflorescence as in *C. cymbaria*. The nut is greyish brown, and is more attenuate at the base and less umbonate than in *C. cymbaria* (Figure 2b, c).

This genus belongs to subfamily Mapanioideae, which has a complex floral arrangement that is poorly understood. The typical basic inflorescence unit (as seen in Australian mapanioid genera such as *Exocarya* and *Lepironia*) consists of one broad, thick-textured, non-keeled, basal scale subtending two slender, thin-textured, lateral keeled scales (with ciliolate keel) at each end of a \pm distichous, flattened array of two to numerous slender, thin-textured, non-keeled scales, most of which subtend a single stamen but some are empty. The pistil appears terminal. In *Chorizandra*, however, the inflorescence unit differs in having a continuum of scale-form from the broader, mostly keeled (but not ciliolate) lowest 1–3 scales to the narrow upper scales. Also,



Figure 2. *Chorizandra australis*. **a**, Holotype; **b**, nut (from *Beaglehole* 68256). *Chorizandra cymbaria*. **c**, Nut (from *Wilson* 3093).

the scales are all spirally arranged, producing a terete unit. This inflorescence unit is here termed a *pseudospikelet* since it may not be homologous with spikelets in the rest of the family; similarly, all floral scales in this unit are here called scales since they may not be homologous with bracts and glumes. In the three genera mentioned, the pseudospikelets are clustered variously to form a head-like (*Chorizandra*) or spikelet-like (*Lepironia*) inflorescence or in spikelet-like units further clustered in compound anthelate inflorescences (*Exocarya*).

SELECTED SPECIMENS SEEN: VICTORIA: East Gippsland: Lake Baracoota, *Albrecht 3634 & Walsh*, 6 Sep 1988 (NSW ex MEL). Gippsland Plain: Nooramunga Marine-Wildlife Reserve, *Beauglehole 75867, Ross & Allen*, 10 Dec 1983 (NSW ex MEL). Wilsons Promontory: Wilsons Promontory National Park, *Beauglehole 75242 & Eichler*, 7 Nov 1983 (NSW ex MEL). Midlands: Stony Creek Reservoirs, c. 12 km NE of Meredith, *Wilson 6830 & Hill*, 11 Mar 1986 (NSW). Volcanic Plain: Walook Swamp, 3.25 km NNW of Portland Post Office, *Beauglehole 68697*, 19 Apr 1981 (MEL, HO, NSW). Grampians: Big Swamp, 5 km due NE of Woohpooer, *Albrecht 3153*, 9 Mar 1987 (NSW ex MEL). Wannon: Surrey River Swamp, Kentbruck Heath, Lower Glenelg National Park, *Beauglehole 68256*, 11 May 1980 (NSW, AD, BRI, C, CANB, DNA, GENT, H, HO, MEL, MICH, NOU).

TASMANIA: Hibbs Lagoon, *Buchanan 2770*, 24 Jan 1984 (HO); Apsley River, *Fitzgerald*, Jan 1893 (NSW 123713); Blowhole Valley, c. 2 km from Cockle Creek settlement, *Orchard 5290*, 26 Jan 1981 (HO, MEL, NSW).

SOUTH AUSTRALIA: South-eastern: Middle Swamp, Hanans [Honans] Scrub, Glencoc, *Bates 4022*, 30 Oct 1977 (AD, MEL, NSW).

5. *Cyperus*

Cyperus eglobosus K.L. Wilson, sp. nov.

Aff. *C. enervi* sed stylobasi non tumida, stylo ad basin divisio, differt.

TYPE: NEW SOUTH WALES: North Coast: c. 1 km N of North Head towards Ocean Shores, *K.L. Wilson 5765*, 23 December 1983; holo NSW; iso BRI, K.

Small, tufted perennial, occasionally proliferating from the inflorescence. Culms trigonous to terete, smooth, to 50 cm high, c. 1 mm diam. Leaves not septate-nodulose, shorter than culms, with blades to 1.5 mm wide. Inflorescence a digitate cluster to 2 cm diam. of 4–25 spikelets, without branches, or rarely a solitary spikelet; involucre bracts leaf-like, 2 or 3 much longer than inflorescence. Spikelets flattened, 5–16 mm long, c. 2 mm wide in side view, 6–28-flowered; rachilla narrowly winged, persistent. Glumes acute, with sides 2–3-nerved, whitish to pale brown, 1.5–1.7 mm long. Stamens 3. Style 3-fid. Nut trigonous, ellipsoid to broad-ellipsoid, smooth, dark yellow-brown, not much shorter than glume, c. 1 mm long, c. 0.8 mm diam. Figure 3a, b.

DISTRIBUTION AND ECOLOGY: Usually close to the sea, in littoral forest and woodland behind coastal dunes and headlands, on sandy soil; south from near Sarina (South Kennedy district of Queensland) to Jervis Bay (South Coast, New South Wales).

DERIVATION OF EPITHET: From the Latin *e, ex*, without, lacking, and *globosus*, globose or spherical. This refers to the most obvious difference between this species and the closely allied *C. enervis* R. Br., namely the lack of a small but distinct, more or less globose swelling at the persistent base of the style.

NOTES: *Cyperus eglobosus* belongs in the mainly Australian section *Tenelli*, which is in subgenus *Anosporum*. This species is of somewhat coarser habit than the closely allied *C. enervis*, differing most obviously from that species in having an ellipsoid to broad-ellipsoid nut (Figure 3b) without a persistent enlarged style-base (broad-obpyriform to obovoid in *C. enervis*, with the persistent style-base with a small but distinct, more

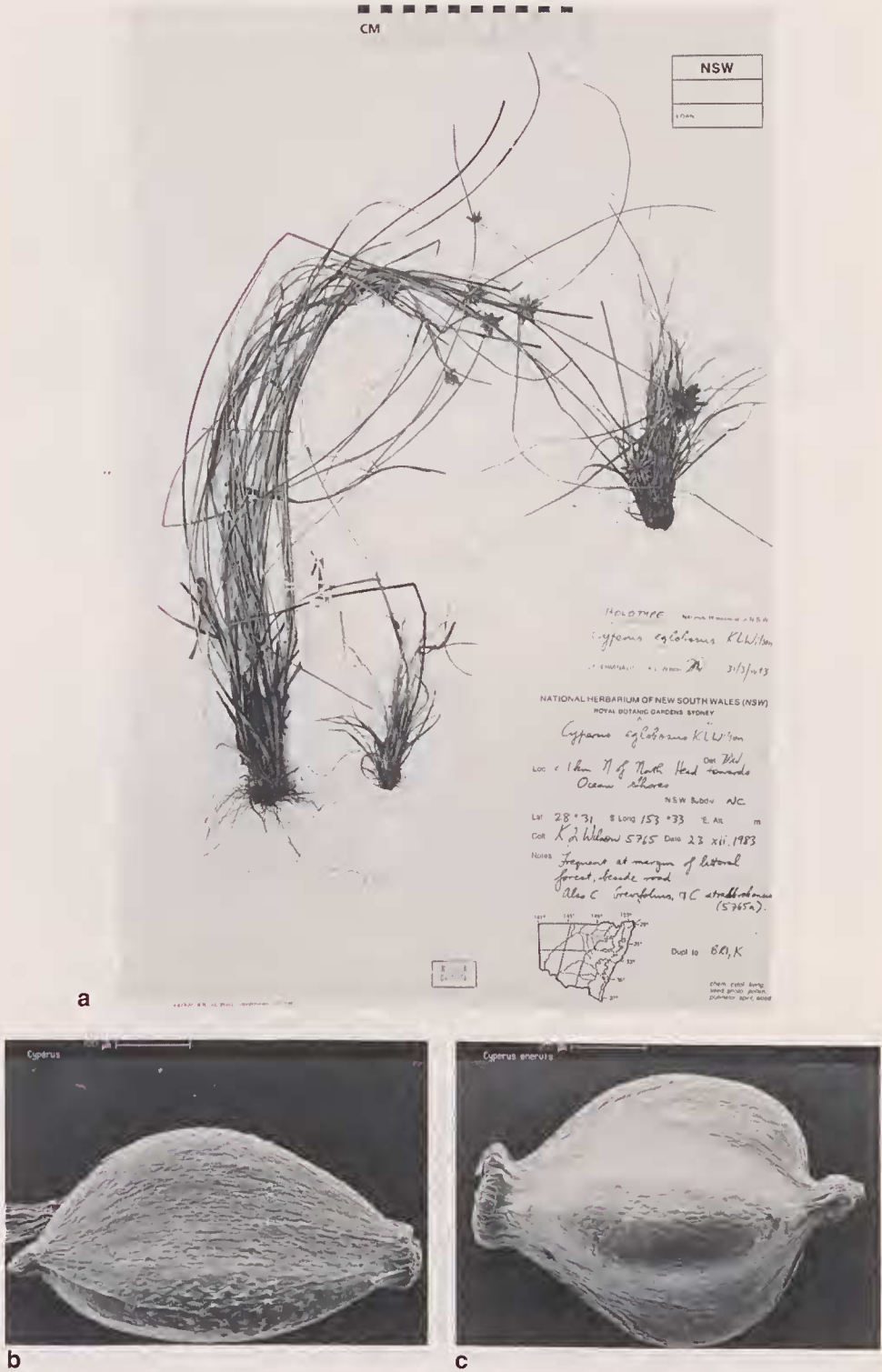


Figure 3. *Cyperus eglobosus*. a, Holotype; b, nut (from Coveny 9350). *C. enervis*. c, Nut (from Wilson 4067).

or less globose bulge (Figure 3c)) and in having generally somewhat incurved glumes (although occasionally slightly excurved as in *C. enervis*). Its nut tends to be paler yellow-brown than that of *C. enervis* (usually red-brown), and tapers evenly to the base whereas that of *C. enervis* narrows then broadens again at the very base. Its style is mostly divided right to the base, whereas that of *C. enervis* is mostly undivided near the base for about 0.3 mm. Habitat preferences are also different. *C. eglobosus* is associated with littoral woodlands, on sandy soils, whereas *C. enervis* is generally farther from the sea (although closer in Queensland than in New South Wales), on the margins of rainforest and wet sclerophyll forests, mostly on clay-loam soils derived from basalt or rhyolite. *C. enervis* has a larger geographic range, extending south from the McIlwraith Range (Cook region, Queensland) to the Sydney region.

SELECTED SPECIMENS SEEN: QUEENSLAND: South Kennedy: Armstrong Beach, northern end, T.J. McDonald & Batianoff 1286, 6 Apr 1975 (BRI, NSW). Port Curtis: Pinnacle Point, The Causeway, N of Emu Park on Yeppoon road, Wilson 3667, Sharpe, Johnson & Blaxell, 5 May 1981 (NSW, BRI). Moreton: Point Lookout, North Stradbroke Island, Coveny 2037, 31 Aug 1969 (NSW, BRI, K, P).

NEW SOUTH WALES: North Coast: Broadwater National Park, N of Evans Head on the Broadwater road, Coveny 9350, 30 Apr 1977 (NSW, BRI, P); Kangaroo Point, c. 1 mile [1.5 km] SE of Soldiers Point, Port Stephens, Solling 593, 24 Nov 1973 (NSW). Central Coast: Budgewoi, Coveny 6044, Hind & Seur, 2 Mar 1975 (NSW, CHR, K, P); Princes Highway, Minnamurra River, McBaron 13885, 17 Feb 1967 (NSW). South Coast: Jervis Bay, c. 300 m SW of Governor Head, at Murrays Beach, Lyne 424, 30 Aug 1991 (NSW ex CANB).

Spelling of *Cyperus haspan*

The epithet of *Cyperus haspan* L. has usually been spelt thus since Linnaeus described the species in 1753. However, Kern (1974: 624) unfortunately 'corrected' it to '*halpan*' in the stated belief that the spelling used by Linnaeus was an orthographic error caused by his misreading of the vernacular name '*halpan*', an error that therefore had to be corrected according to Article 73 of the International Code of Botanical Nomenclature. This is not so (Wilson 1991a). To summarize, Linnaeus (1753: 43) appears to have made a deliberate choice of the spelling '*haspan*'. If one goes back to his *Flora Zeylanica* (1747: 15), he cites both spellings from the pre-Linnean literature: '*haspan*' from Burman (1737: 108) and '*halpan*' from Hermann (1726: 23). Furthermore, as Trimen (1887: 135) pointed out, while there is indeed a Singhalese vernacular name '*halpan*', it applies to another species altogether, *Fimbristylis umbellaris* (Lam.) Vahl (then known as *F. globulosa* (Retz.) Kunth). This is not a clear case of orthographic error and the spelling '*haspan*' is to be retained, as has been done by most recent authors, such as Koyama (1979), Tucker (1983), and Wilson (1987, 1993).

Cyperus vorsteri K.L. Wilson, nom. nov.

BASIONYM: *Mariscus grantii* C.B. Clarke, *Flora Capensis* 7: 194 (1898) [non *Cyperus grantii* Boeck. (Boeckeler 1875: 260)]

SYNTYPES: SOUTH AFRICA: Port Natal, W.B. Grant s.n. (K); Natal, T. Cooper 3332, 1862 (K).

DISTRIBUTION AND ECOLOGY: This species is native to South Africa. It has been introduced to disturbed woodland in suburban parks in Sydney and Perth. As described by Vorster (1978), this species is restricted both geographically and in habitat in South Africa: in tall mistbelt forest along the east coast. In Australia it is in more open, drier forest, which makes its introduction rather surprising. However, the identification has been confirmed by C. Reid (PRE) and by P. Vorster (STEU), and by comparing material at K.

DERIVATION OF EPITHET: Named after Dr Pieter Johannes Vorster, of the University of Stellenbosch, South Africa, who revised this group in southern Africa (Vorster 1978).

NOTES: I am not lectotypifying the name here; such action is not essential because the syntypes both represent the same taxon, and would be more appropriately done by a botanist who knows the taxon and related species in their native region.

The species is described (Vorster 1978: 158) as having 1–3 flowers per spikelet. The Australian specimens have 2–5 flowers per spikelet (mostly 2-flowered) but otherwise match *C. vorsteri* well in features such as density of clustering of spikelets and glume colour that distinguish this species from *C. owanii* Boeck.

C. vorsteri was regarded as a synonym of *C. macowanii* until Vorster (1978) separated it. This did not cause any nomenclatural problem for him because he treated the species as belonging to the genus *Mariscus*. However, I regard *Mariscus* as an ill-defined taxon that falls within *Cyperus* (Wilson 1991b). Hence the name in *Cyperus* for our introduced species has to be considered. The epithet *grantii* is not available because it had already been used for *Cyperus grantii* Boeck. (Boeckeler 1875). Since no other names appear applicable, I have chosen the epithet *vorsteri* in recognition of the studies carried out by Dr Vorster on this group (some of which remain unpublished in his doctoral thesis).

SELECTED SPECIMENS SEEN: NEW SOUTH WALES: Central Coast: Lane Cove, *Klaphake*, 12 Feb 1991 (NSW 250927); Parsley Bay, *Klaphake*, 10 Feb 1991 (NSW 250925), *Bell*, Feb 1992 (NSW 250924).

WESTERN AUSTRALIA: Piesse Brook, *Wilson* 2729, 8 Oct 1979 (NSW), *Marchant* 82/87, 4 Sep 1982 (PERTH).

SOUTH AFRICA: Port St Johns, *Schönland* 4013, Jan 1921 (K, NSW), *Arnold* 799, Jan 1974 (K ex PRE), *Vorster* 2428, 27 Oct 1973 (K ex PRE); Ngoya forest, *Vorster* 2482, 11 Dec 1973 (K ex PRE).

The earlier name *Cyperus grantii* Boeck. is not indexed in Kükenthal (1935–36). As a matter of interest, I checked its type in K, cited by Boeckeler as a specimen in Hooker's herbarium. The type, 'near Tabora in Unyamwezi, German East Africa, Expedition to the sources of the Nile 1860–1863, *Captains Speke & Grant*', bears Boeckeler's manuscript description. The taxon was said by Boeckeler to be related to *C. tenax* but it is synonymous with that species. The type was re-determined as such by C.B. Clarke in 1892.

6. *Eleocharis*

Eleocharis macbarronii K.L. Wilson, sp. nov.

E. atrichae affinis, sed nucibus plerumque praesentibus plus minusve obpyriformibusque, culmis epidermide egregia, differt.

TYPE: NEW SOUTH WALES: South Western Plains: Lake Urana, *E. McBarron* 6008, Nov 1952; holotype NSW; isotype BRI.

Tufted perennial, producing small tubers c. 5 mm long. Culms terete, grooved when dried, dull greyed yellow-green to blue-green, 25–75 cm long, 0.8–1.5 mm diam. Leaf sheaths hyaline to pale brown, thin-textured, with very oblique mouth. Spikelet cylindrical, 5–18 mm long, occasionally proliferating. Glumes acute to obtuse, with indistinct midrib, to 3.5 mm long, pale straw-coloured to red-brown, with hyaline margins. Hypogynous bristles absent. Stamens 3; anthers 1–2.5 mm long. Style 3-fid. Nut turgidly biconvex to \pm terete, obpyriform to broad-obovoid, narrowed to short neck, with c. 8 prominent longitudinal ridges and numerous narrow transversely



a



b



c

Figure 4. *Eleocharis macbarronii*. a, Holotype; b, nut; c, culm surface showing large oval epidermal cells in rows and stomates scattered between the rows (b,c from McIntyre 1007).

elongated cells on each face, yellow-brown tinged very dark brown, 1.2–1.5 mm long, 0.7–1 mm diam.; style-base c. 1/6 as long and 1/2 as wide as nut. Figure 4.

DISTRIBUTION AND ECOLOGY: Known from scattered collections that indicate the species grows from the Darling Downs region of Queensland along the near Western Plains to central and western Victoria. An old specimen from the Hawkesbury Agricultural College near Richmond may have been introduced (not collected there since 1910). The species occurs, so far as known, in seasonally wet situations, on clayey soil (in brigalow woodland in Queensland). It has been collected in a few rice crops near Finley and in the Coleambally Irrigation Area, where it was behaving as a weed, often proliferating from the spikelet.

DERIVATION OF EPITHET: The species is named after Edward John McBarron, of Campbelltown, who found time in the course of his notable veterinary career to make extensive collections of plant specimens, particularly in the Albury region (McBarron 1955). His own herbarium is now included in NSW. The spelling of the epithet is deliberate, in line with Recommendation 73C of the 1988 edition of the International Code of Botanical Nomenclature.

NOTES: The species belongs to subgenus *Scirpidium* (formerly known as section *Acicularis* (Blake 1939, Kukkonen 1990)). It is similar to *E. atricha* R. Br. but differs from that species in having a broader, obpyriform to broad-obovoid nut, which is freely produced and has more numerous longitudinal striations and a somewhat smaller style-base and a more obvious slender neck. The culm surface (at least when dried – less obvious when fresh) has a distinctive pattern of longitudinal rows of whitish ovals or circles (representing enlarged cells lying parallel to the stomates; Figure 4c), best seen at a magnification of about 20 times. In *E. atricha*, the longitudinal striations are fine and the cells not obvious. Like *E. atricha*, *E. macbarronii* produces small tuberous perennating organs that enable the plant to persist around ephemeral waterbodies. With a more consistent water-supply, such as in a rice crop, the plants are more robust and do not produce tubers so readily.

SPECIMENS SEEN: QUEENSLAND: Darling Downs: 18 miles [29 km] N of Jackson, *Melville 3450*, Blake & Everist, Mar 1953 (K, NSW).

NEW SOUTH WALES: Central Coast: Farm of the Hawkesbury Agricultural College, Richmond, *Greenwood*, Oct 1910 (NSW 78832). North Western Plains: Narrabri West, *Boorman*, Oct 1914 (NSW 20684, K). South Western Plains: Farm no. 48, Coleambally Irrigation Area, *McIntyre 1007*, Mar 1987 (NSW, K, P); Farm 209, 10 km S of Coleambally, *Hayman*, 15 Mar 1988 (NSW 156446); 10 km SE of Finley, *Walsh*, 15 Jan 1992 (NSW 250922), 15 km SE of Finley, *Walsh*, 3 April 1992 (NSW 253378, BRI, MEL); 'Careena', property off Mardenoora Road, c. 14 km direct SE of Finley, *Wilson 8637*, *Frank & Lacy*, 29 Apr 1993 (NSW, CANB, MEL), *Wilson 8638*, *Frank & Lacy*, 29 Apr 1993 (NSW, BRI, CANB, CHR, GENT, H, K, MEL, NY, P, SI).

VICTORIA: Wimmera: Nurcoung Flora Reserve, *Beaglehole 86765*, Nov 1986 (MEL, NSW).

7. *Gahnia*

The twisted leaf-blades and correspondingly inverted anatomy in species of this genus have not been remarked upon previously, probably because their condition is not obvious on herbarium specimens. Not all species have been checked in the field as yet, but in at least most species, especially the larger tussock-forming species such as *G. sieberiana*, *G. clarkei*, *G. erythrocarpa*, *G. novocaledonensis*, *G. sinuosa* and *G. subaequilumis*, the leaf blades are twisted through 180° at a short distance above the sheath so that the morphologically adaxial surface (as determined by the presence of the ligule at the blade-sheath junction) is held as the lower surface in the twisted upper part of the leaf and the abaxial as the upper surface. This is reflected in the leaf surfaces and

anatomy: the morphologically adaxial surface in these species is scabrous and dull, the abaxial is only slightly scabrous, shining and brighter green, which is a reversal of the common situation in Cyperaceae. The adaxial surface has an impressively complex anatomy, as illustrated in Betts (1920: figs 29, 30) and Metcalfe (1971: fig. 37C–E), neither of whom recognised this unusual reversal of position, presumably not having seen living plants. Stomates are mostly found in deep furrows on this surface in the species surveyed, rather than on the abaxial surface as in many other members of the Cyperaceae.

8. *Isolepis*

Isolepis gaudichaudiana Kunth

(Kunth 1837: 201). TYPE: NEW SOUTH WALES: Port Jackson, *Gaudichaud*; lecto P (here chosen), photo and fragment BRI; isolecto K. I found no specimen of this remaining in B, where most of Kunth's types were held. The specimen in P bears an original label and could perhaps be regarded as the holotype; however, to avoid any ambiguity, it is here selected as lectotype. The specimen in K was given by Gaudichaud to J. Gay, according to the label.

Scirpus gaudichaudii Boeck. (Boeckeler 1870: 511). TYPE: based on *Isolepis gaudichaudiana* Kunth [non *Scirpus gaudichaudianus* Kunth]

Scirpus inundatus var. *floribundus* Benth., *synon. nov.* (Bentham 1878: 330) TYPE: VICTORIA: Upper Loddon River, *F. Mueller*, [received by Bentham] 1876; holo K (photo NSW); probable iso MEL, NSW. The type is not annotated by Bentham with the varietal epithet, merely with '*Scirpus gaudichaudii* Boeck. var.'

This small species occurs in moist open situations, mainly on the tablelands, south from the Armidale area of New South Wales to Victoria and Tasmania. It shows some similarities in morphological characters to both *I. inundata* and *I. montivaga*; for example, it has one stamen as in *I. inundata* while the spikelets look similar to those of *I. montivaga*. These species need further study. *I. montivaga* differs from *I. gaudichaudiana* in having a larger nut (to about 1.3 mm long, about 2/3 as long as glume), which is unequally trigonous with the third angle often not clearly defined, darker yellow to grey-brown; it only occurs at higher altitudes. The involucre bracts in *I. inundata* are to 1.5 cm long but are always much shorter than the culms, unlike those in both *I. montivaga* and *I. gaudichaudiana*. These latter two species also have well-developed leaf-blades, unlike *I. inundata*, which usually only develops blades in immature plants. There is a dwarfed form of *I. gaudichaudiana* with slightly smaller nuts (about 0.7 mm long) and glumes (about 1.2 mm long) from the Brindabella Range to the Kosciusko area, behaving as a pioneer annual in solifluction trenches in grassland. This form, along with various other taxa in the genus, need further study.

9. *Lepidosperma*

Morphologically, this genus requires a different approach from most other taxa in the family since there are relatively few obvious differences in floral characters (especially the nuts). Hence characters that are hard to quantify or describe concisely such as shape of inflorescence and surface patterns of leaves are of importance. Comparison of culms or leaves shows different patterns that mainly reflect the underlying forms and sizes of epidermal and sclerenchymatic tissue. These differences are not easy to describe succinctly; the anatomy of leaves and culms is still being investigated and will be dealt with separately.

***Lepidosperma avium* K.L. Wilson, sp. nov.**

L. canescenti *L. clipeicolae*que affinis, sed vaginis foliorum umbrinis differt; praeterea, a *L. canescenti* culmis mollioribus, glumis brevioribus, spiculis appressis, foliis redactis, nervis prophyllorum ciliatis; a *L. clipeicolae* medulla culmorum irregulariter interrupta, differt.

TYPE: SOUTH AUSTRALIA: North-western: Everard Ranges, Mt Illbillee area, A.C. Beaglehole 25521, 27 June 1968; holo NSW; iso AD n.v., BRI n.v., CANB n.v., CBG n.v., DNA n.v., MEL.

Clump-forming perennial with short rhizome. Culms rigid, erect, nodeless, terete, finely striate, glabrous, smooth, 120–240 cm high, 1.8–3.8 mm diam. Leaves basal, reduced to sheaths with short blades to 2 cm long; sheath chocolate-brown, not viscid, ± shining. Inflorescence fan-shaped to ovate in outline, consisting of a cluster of several to numerous slender spikes, spreading, 5–10 cm long, 3–6 cm diam.; involucre bract much shorter than inflorescence. Spikelets numerous, appressed to rachis, terete, 4–5 mm long, with 1 bisexual flower and 1 male flower below. Glumes 3 or 4, smooth or puberulous near apex, dark red-brown to blackish; 1 lowest empty, somewhat shorter than fertile glumes, acute to broad-acute; fertile c. 4 mm long, long-acute; uppermost glume reduced. Scales 6, falling with nut, basally inflated at maturity with setulose upper portion, yellowish, c. 1/3 length of nut. Stamens 3; anthers 1.3–2.5 mm long, excluding the apical appendage that is 0.2–0.5 mm long. Style 3-fid; style-base continuous with ovary, persistent and fused with nut, shortly conical. Nut trigonous, narrow-ellipsoid, pale to dark brown, smooth, shining, 3.0–3.5 mm long, 1.3–1.5 mm diam. Figure 5a.

DISTRIBUTION AND ECOLOGY: Apparently restricted to the Everard Ranges in the north-west of South Australia. On rocky hillsides.

DERIVATION OF EPITHET: From the Latin *avius*, remote or out of the way, referring to the isolation of this species of *Lepidosperma* in the arid zone.

NOTES: This belongs to a group of species with a distinctive inflorescence of several to numerous spike-like branches with small, appressed spikelets. Other members of the group are *L. urophorum* N.A. Wakefield and *L. clipeicola* K.L. Wilson in Australia, *L. perteres* C.B. Clarke and *L. pauperum* Kük. in New Caledonia. They all have prophylls in the inflorescence that are white-ciliate on the two nerves, a feature unusual in the genus.

It was previously misidentified with *L. canescens* Boeck. (e.g. Wilson in Jessop 1981: 513) but it differs from that species in the colour of the leaf sheaths (in *L. canescens*, sheaths are stramineous above to dark grey-brown, occasionally dark reddish above); in the mostly shorter and appressed spikelets (in *L. canescens* 5–7 mm long and more or less spreading); and in the prophylls, which are white-ciliate on the two nerves in *L. avium* but smooth or occasionally puberulous in *L. canescens*. In addition, the leaf blades are mostly well-developed in *L. canescens*. The surface pattern of the culms is more similar to that of *L. canescens* than those of the other species mentioned. Also, the pith in the culms is irregularly interrupted as in *L. canescens*, in contrast to that of the other species; which is composed of regularly spaced, thin transverse 'plates' of pith.

SELECTED SPECIMENS SEEN: SOUTH AUSTRALIA: North-western: Everard Ranges, Helms, June 1891 (NSW 263858, 263859); Everard Park HS., Forde 905, Sep 1957 (NSW ex CANB); Illbillee Well area, Everard Park Station, Everard Ranges, Beaglehole 10149, June 1965 (MEL, NSW).

Lepidosperma clipeicola K.L. Wilson, sp. nov.

L. urophoro *L. perteretique* affinis, sed in vaginis foliorum badiis, culmis flavovirentibus, differt.

TYPE: NEW SOUTH WALES: North Coast: Upper slopes of Mt Warning, K.L. Wilson 8520, 18 Oct 1992; holo NSW; iso BRI, CHR, K, L, NY, P, PRE).

Big clump-forming perennial with short rhizome. Culms rigid, erect, nodeless, terete, finely striate, glabrous, smooth, to 2 m high, 1.5–3.5 mm diam. Leaves basal, reduced to sheaths with a blade to 2 cm long; sheath orange- to red-brown, not viscid, dull. Inflorescence fan-shaped to ovate in outline, consisting of a cluster of several to numerous slender spikes, spreading, 4–10 cm long, 4–8 cm diam.; involucre shorter than inflorescence. Spikelets numerous, terete, 3.5–5 mm long, with 1 or 2 bisexual flowers, often with 1 male flower below. Glumes 4 or 5, puberulous at least near apex, often ciliate, dark red-brown to grey-brown; 1 or 2 lowest empty, slightly shorter than fertile glumes, obtuse to acute; fertile 3.0–4.0 mm long, acute to broad-acute. Scales 6, falling with nut, whitish to yellowish, basally inflated at maturity with setulose upper portion, 1/4–1/3 length of nut. Stamens 3; anthers c. 1.8 mm long, excluding the apical appendage that is c. 0.5 mm long. Style 3-fid; style-base continuous with ovary, persistent and fused with nut, shortly conical to pyramidal. Nut narrow-ellipsoid to ovoid, smooth, shining, pale brown, 2.8–4.0 mm long, 1.4–1.7 mm diam. Figure 5b.

DISTRIBUTION AND ECOLOGY: On coastal ranges that are remnants of the Mt Warning Shield Volcano north from Nightcap Range to the Border Ranges; North Coast of New South Wales, and Queensland. Grows in moister spots in eucalypt forest at higher altitudes, on volcanic-derived soils.

DERIVATION OF EPITHET: From the Latin *clipeus*, a shield or, by transference, an object of that form, and *-cola*, a dweller, referring to the distribution of this species on the mountain ranges representing remnants of the Mt Warning Shield Volcano. This epithet is to be treated as a noun in apposition, and the ending is therefore invariable.

NOTES: This belongs with the preceding species, q.v., in an informal group of species. The orange-brown leaf sheaths (often bright) distinguish this species from the others in this group. The culm surface is most similar to that of *L. perteres* but that species has shorter branches in its inflorescence and an acute, rather longer style-base besides having dark brown to black leaf sheaths.

It was referred to as '*L. urophorum* North Coast form' in Jacobs & Pickard (1981), but *L. urophorum* differs in being more slender and having blackish leaf sheaths.

SELECTED SPECIMENS SEEN: QUEENSLAND: Daves Creek Country, Binna Burra, Jones J326, Feb 1962 (NSW ex BRI); above Picnic Creek, Lamington National Park, Johnson, May 1951 (NSW 17235); Mt Barney, Blake 14100, June 1939 (BRI, NSW).

NEW SOUTH WALES: North Coast: Blackbutt Plateau, between Huonbrook and Wilsons Creek, Walker, Sep 1984 (NSW 167553); Boogarem Falls Flora Reserve, Nullum State Forest, Koonyum Range, Wilson 5773, Dec 1983 (NSW, CANB); Whian Whian State Forest, 3 km NW of Rummery Park on Peach Mountain road, Wilson 7624, Dec 1989 (NSW, BRI, CHR, GENT, HO, K).

Lepidosperma evansianum K.L. Wilson, sp. nov.

Species basi styli elongati pyramidalis ad 1.5 mm longo a speciebus australiensibus diversa.

TYPE: NEW SOUTH WALES: Central Tablelands: Govetts Leap, Blackheath, E.F. Constable 5576, 10 December 1964; holo NSW; iso BRI, CHR, K, L, P.



Figure 5. Holotypes of a, *Lepidosperma avium* and b, *L. clipeicola*.

Tufted perennial with short rhizome. Culms lax to weeping, nodeless, compressed, oval in cross-section with rounded margins and with a groove on each flattened surface, finely striate, glabrous, smooth, 20–55 cm high, 1.0–1.5 mm diam.; margins rounded, smooth. Leaves basal, isobilateral, similar in form to culms but slightly shorter, 0.7–1.5 mm wide; sheath stramineous to dark grey-brown at base, not viscid, \pm shining. Inflorescence oblong to ovate in outline, narrow, erect, 5–7 cm long, c. 1 cm diam.; involucre shorter than inflorescence. Spikelets \pm numerous and densely clustered, terete, with 1 bisexual flower and 1 male flower below, 4–6 mm long. Glumes 5–7, long-acute to acute, often mucronate, glabrous or puberulous near apex, mixed red-brown and stramineous to grey-brown with age; lowest 2 or 3 empty, about half as long as fertile glumes; fertile 6.0–6.5 mm long; uppermost glume reduced. Scales 4 or 5, falling with nut, basally inflated at maturity with setulose upper portion about as long as inflated portion, whitish to grey, c. 1/4 length of nut (c. 3/4 as long if including bristle portion). Stamens 3; anthers 2.2–3.3 mm long, excluding the apical appendage that is 0.3–0.5 mm long. Style 3-fid; style-base continuous with ovary, persistent, thickened, pyramidal, glabrous, from about half as long as to equaling nut body. Nut subterete, obovoid to ellipsoid, stramineous or grey-green, smooth or wrinkled, shining, 1.8–3.8 mm long, 1.0–1.5 mm diam. Figure 6a, 7a.

DISTRIBUTION AND ECOLOGY: Apparently restricted to wet sandstone cliff faces in the Blue Mountains, Central Tablelands of New South Wales.

DERIVATION OF EPITHET: Named after Obed David Evans (1889–1975), who was unassuming (like this species) but who contributed greatly to botanical knowledge of the Sydney region (Carolin & Johnson 1976), particularly in Cyperaceae and other monocot groups.

NOTES: The affinities of *L. evasianum* are not clear and require further investigation. The elongated style-base (continuous with the ovary) of this species is somewhat like that found in the related genus *Tetraria*, but the inflated hypogynous scales and isobilateral leaves place this species in *Lepidosperma*. There are several other species in the genus recorded as having an elongated style-base: *L. pauperum* Kük., *L. perteres* C.B. Clarke, and *L. rostratum* S.T. Blake. *L. perteres* and *L. pauperum*, both endemic to New Caledonia, do have a similar style-base to that of *L. evasianum* but differ in other features. *L. rostratum*, a Western Australian species, does not in fact have a particularly long style-base despite its epithet; the apex of the nut is rounded (conical to cylindrical) and puberulous.

SPECIMENS SEEN: NEW SOUTH WALES: Central Tablelands: Horseshoe Falls, Blackheath, *Constable* 5708, Mar 1965 (NSW); Wentworth Falls, *McBarron* 8702, Jan 1964 (NSW), *McBarron* 19115, Jan 1970 (NSW), *Wilson* 8626, 24 Apr 1993 (NSW).

Lepidosperma filiforme Labill.

(Labillardière 1805: 17, t.15). TYPE: TASMANIA: in capite Van-Diemen, *Labillardière*; holo FI-W; iso BRI, TCD.

L. flexuosum R. Br., **synon. nov.** (Brown 1810: 235) TYPE: NEW SOUTH WALES: Port Jackson, *R. Brown* (*Bennett* 6026); lecto BM (here chosen); probable isolecto BM, K.

There are three sheets labelled *Bennett* 6026 in BM: two bear similar specimens of the taxon that has traditionally been known as *L. flexuosum*, the third bears a mixture of that taxon, of *L. forsythii* A.A. Hamilton and of a Western Australian species (determined as *L. ?gracile* by Clarke). All three sheets have original labels in Brown's script but only the label on the mixed sheet bears the name *L. flexuosum*. The wording of the protologue does not strongly indicate to which taxon Brown intended to apply the name *flexuosum*, but the bulk of the material is referable to what has traditionally

been called *flexuosum*. Thus, to preserve current application of the epithets *flexuosum* and *forsythii*, one of the two unmixed sheets is chosen as lectotype.

L. filiforme is here regarded as including *L. flexuosum*, which was previously distinguished from the former as a species of coastal New South Wales on the basis of the inflorescence axis being more flexuose and the leaf sheaths being reddish rather than yellowish. However, while there is extensive variation in New South Wales in the extent of flexing of the axis and also variation throughout south-eastern Australia in colour of leaf sheaths, these do not seem to correlate. Leaf sheaths are more commonly pale yellowish but are often reddish, and both colours can be found in the same population. Since all other characters vary little, *L. flexuosum* is here synonymised with *L. filiforme*.

Lepidosperma forsythii A.A. Hamilton

(Hamilton 1910: 411). TYPE CITATION: 'Centennial Park in swamps; flowers in April; fruit in August, 1902 (A.A. Hamilton) ...First discovered in a swamp in the Centennial Park 1897 by Mr W. Forsyth.'

TYPE: NEW SOUTH WALES: Central Coast: Centennial Park (swamps), A.A. Hamilton, flowers [in] April, fruit August, 1902; lecto (here chosen) NSW 267171. This is the only relevant specimen in NSW (the only Forsyth specimen was collected in July 1902); the label is in Hamilton's script.

This species is unusual in the genus in having only three hypogynous scales, which are not or scarcely inflated, setaceous, yellowish, c. 1/3 length of nut, often at one side of nut only. However, it mimics other members of the genus by having the three stamen filaments also rather inflated at the base and remaining attached to the nut with the three scales (Figure 7b). In all other characters it fits well in the genus *Lepidosperma*.

Lepidosperma gunnii Boeck.

(Boeckeler 1874: 325). TYPE CITATION: 'L. squamatum Herb. Hook., nec Labill. Tasmania (R.C. Gunn)'.

TYPE: TASMANIA: Penquite, R.C. Gunn 1497, December 1845; lecto (here chosen) K; probable isolecto NSW. The lectotype is one of two specimens seen by me in K that were determined by J.D. Hooker as 'L. squamata Lab.?' However, the other specimen

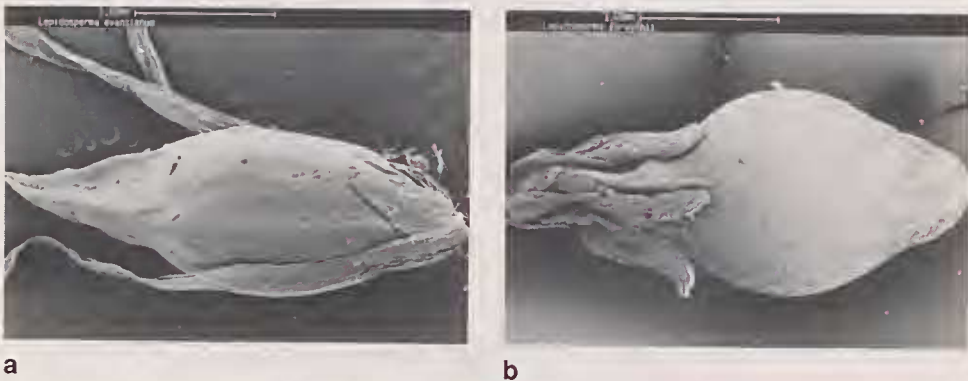


Figure 7. a, Nut of *Lepidosperma evansianum*, showing two hypogynous scales lying outside one of the thin, flat stamen filaments (from McBarron 19115). b, Nut of *L. forsythii*, showing two of the three short hypogynous scales lying outside the inner whorl of three enlarged stamen filaments (from Coveny 11203).

was collected in Victoria by Robertson (it belongs to *L. curtisiae* K.L. Wilson & D.I. Morris) and was not cited by Boeckeler. Therefore the Gunn specimen is the only relevant collection. Because there is no indication on the sheet that Boeckeler saw it and because it bears more precise but different collection details from those cited by Boeckeler, it is here chosen as lectotype rather than regarded as the holotype. I have seen no sheet elsewhere that could be considered as the type.

[*L. lineare* auct. non R. Br.]

This species has mostly been included in *L. laterale* sens. lat. or named as *L. lineare* R. Br. However, the type of *L. lineare*, collected by Brown in the Hobart region, is a specimen of *L. laterale*, which is a species that he named from a New South Wales collection – see below. The next available name for this taxon (i.e. *L. lineare* auct.) is *L. gunnii* Boeck., which Boeckeler (1874) based on a Gunn specimen in J.D. Hooker’s herbarium. This taxon is closely allied to *L. laterale*, with which it may be found growing occasionally (e.g. at Bald Rock, New South Wales).

These species belong to a group with flattened to biconvex culms, spikelets usually not clustered, and mostly rather narrow spike-like inflorescences. Other species in eastern Australia include *L. curtisiae* K.L. Wilson & D.I. Morris, *L. elatius* R. Br., and *L. inops* Rodway ex F. Muell. The classification of this group is not yet well-resolved but the typical forms of these species as currently understood can be keyed out as follows.

- 1 Inflorescence 7–65 cm long, with long, more or less spreading branches
 - 2 Culms flat, or somewhat plano- or concavo-convex, 30–100 cm long, 2–8 mm wide *L. laterale*
 - 2* Culms biconvex, or margins flat with central biconvex ridge, or strongly convex on one face and flat on the other, 70–180 cm long, 8–15 mm wide *L. elatius*
- 1* Inflorescence 0.8–8 cm long, spike-like or with short branches more or less appressed to the main axis
 - 3 Leaves equalling or exceeding inflorescences (often to twice as long)
 - 4 Rhizome vertical; innovations strongly flattened and fan-shaped; basal leaves of innovations with a fully developed blade *L. inops*
 - 4* Rhizome horizontal; innovations more or less terete; basal leaves of innovations reduced to a sheath with or without a reduced blade *L. curtisiae*
 - 3* Leaves not as long as inflorescences
 - 5 Spikelets mostly 3.5–4 mm long; culms usually biconvex, 1–2.5 mm wide; leaf sheaths mostly yellow-brown *L. gunnii*
 - 5* Spikelets mostly 5–8.5 mm long; culms usually flat or concavo-convex, 2.5–8 mm wide; leaf sheaths mostly dark reddish *L. laterale*

L. gunnii – SELECTED SPECIMENS SEEN: QUEENSLAND: The Tombs, beside West Branch of Maranoa River, Carnarvon National Park, Wilson 3446, Sharpe & Johnson, Apr 1981 (NSW).

NEW SOUTH WALES: Central Coast: St Marys, Coveny, June 1966 (NSW 137488, BRI, CHR, K, L, P, PH, TNS, US). South Coast: 4 km SW of Malua Bay on Tomakin road, Wilson 2317, Feb 1979 (NSW). Northern Tablelands: Bald Rock National Park, Wilson 6961, Nov 1986 (NSW, BRI, K, NY). Central Tablelands: Jenolan Caves, Blakely, June 1900 (NSW 137484, AD, CANB, MEL, PERTH, PH). Southern Tablelands: 3 miles [5 km] WNW of Majors Creek, Tallaganda Shire,

Adams 1841, June 1967 (CANB n.v., K n.v., L n.v., NSW, US n.v.). Central Western Slopes: Worondi Rivulet to Gungal Creek, *Johnson*, Apr 1953 (NSW 263856).

VICTORIA: Nicholson Park on Atkinson Road, East Gippsland, grid W41-1, *Beaglehole* 37424, Mar 1971 (MEL, NSW).

TASMANIA: Hanns Hill, River Clyde, *Collier* 1674, Sep 1986 (NSW ex HO).

***Lepidosperma latens* K.L. Wilson, sp. nov.**

L. viscido *L. concavoque* affinis, sed marginibus culmi acutis sed laevibus, culmis plerumque biconvexis, distinguitur.

TYPE: NEW SOUTH WALES: Central Tablelands: Anvil Rock, NNE of Blackheath, 980 m, *K.L. Wilson* 8623 & *A. Wilson*, 17 April 1993; holo NSW; iso BRI, K, NY.

Tufted perennial with short rhizome. Culms rigid, erect, biconvex, or convex on 1 face and \pm flat on other, glabrous, smooth, 35–60 cm high, 3.5–4.5 mm wide; margins acute, cutting but not scabrous, readily erose with age, yellowish. Leaves basal, isobilateral, often flatter than culms or convex on 1 face, flat on the other, shorter than culms, 2.5–4 mm wide; sheath stramineous at apex, otherwise very dark brown to black, occasionally viscid, very smooth and \pm shining. Inflorescence ovate to oblong in outline, erect, 5–12 cm long, 2–4 cm diam.; involucre bract shorter than inflorescence. Spikelets \pm few, 6–7 mm long. Glumes 5 or 6, red-brown with blackish apex and mucro, glabrous or puberulous; lowest 3 or 4 sterile, shorter than fertile glumes, obtuse to acute, mucronate; fertile 5.5–7.0 mm long, obtuse and mucronate to long-acute. Scales 6, falling with nut, whitish to yellowish, c. 1/4 length of nut. Anthers 2.0–2.8 mm long, excluding the apical appendage that is c. 0.5 mm long. Style 3-fid; style-base continuous with ovary, persistent and fused with nut, shortly conical. Nut narrow-ellipsoid to narrow-ovoid, dark grey to red-brown, smooth, shining, c. 2.8 mm long, 1.2–1.4 mm diam. Figure 6b.

DISTRIBUTION AND ECOLOGY: Grows on sandy soils, in heaths and open woodlands; most common in the region from the Blue Mountains to the Budawang Range, extending east to the Sydney region and with apparently isolated occurrences on the Koonyum Range (on North Coast) and near Nadgee (South Coast).

DERIVATION OF EPITHET: From the Latin *latens*, lying hidden or concealed, referring to the previous confusion of this species with *L. laterale* and *L. viscidum*.

NOTES: *L. latens* was previously confused with *L. laterale* R. Br., *L. viscidum* R. Br. and *L. concavum* R. Br., all species of dryish habitats. It differs from *L. laterale* in its broader inflorescence, with more spreading branches and spikelets, its blackish leaf sheaths, and its usually more or less biconvex culms. It differs from both *L. viscidum* and *L. concavum* in having usually biconvex culms without viscid or ciliate margins. It grows with *L. viscidum* (for example, near Blackheath and in Ku-ring-gai Chase) but is readily distinguished in the field by its culms and habit: *L. latens* has very short rhizomes and forms firmly rooted tussocks, whereas *L. viscidum* has longer rhizomes and forms loose tufts that can be easily pulled up by hand. *L. limicola* N.A. Wakefield has similar dark bases and biconvex culms but differs in having a narrower, oblong inflorescence with appressed clusters of spikelets, very scabrous and cutting culm margins, and grows in swamps.

SELECTED SPECIMENS SEEN: NEW SOUTH WALES: North Coast: Just NW of Teales Lookout turn-off, Koonyum Range Road, *Wilson* 5788, Dec 1983 (NSW). Central Coast: Sandstone knoll on 10C Fire Trail, c. 2.5 km from junction with 10B Fire Trail, *Keith* 157, Aug 1985 (NSW). South Coast: NE of Tabletop, Nadgee Nature Reserve, *Pickard* 1072, June 1970 (NSW). Central Tablelands: Newnes Forestry Road [Old Bells Line of Road], 5 km N of junction with main road at Clarence, *Wilson* 8636, 25 Apr 1993 (NSW, CHR, P); southern end of Narrow Neck Peninsula, *Benson* 2365

& Keith, Nov 1983 (NSW). Southern Tablelands: Between Charleyong and Mongarlowe, Moore 1932, Oct 1952 (NSW ex CANB); Currockbilly, Boorman, Feb 1910 (NSW).

Lepidosperma laterale R. Br.

(Brown 1810: 234). TYPE: NEW SOUTH WALES: Central Coast: camp prope Parramatta, Port Jackson, R. Brown (Bennett 6037; lecto (here chosen) BM; probable isolecto BM. There are two relevant sheets in BM. That chosen as the lectotype bears an original label in Brown's script; the other, the sheet said to have been chosen by Brown for the Public Collection, does not.

L. lineare R. Br., **synon. nov.** (Brown 1810: 235). TYPE: TASMANIA: prope fluv. Derwent in ericetis, R. Brown (Bennett 6029), March 1804; lecto (here chosen) BM; isolecto BM, K. There are two relevant sheets in BM. That chosen as the lectotype bears an original label in Brown's script; the other, the sheet said to have been chosen by Brown for the Public Collection, does not.

L. tetragynum R. Br. (Brown 1810: 234). *L. laterale* var. *majus* Benth. (Bentham 1878: 394). TYPE: NEW SOUTH WALES: Central Coast: Port Jackson, R. Brown (Bennett 6038), 1804; holo BM.

The first two names have been applied to different species, but the types belong to the same taxon, which I am here choosing to call *L. laterale* R. Br. since this has been the name more consistently applied to this taxon. The taxon that had been known (at least in New South Wales) as *L. lineare* is here recognised as *L. gunnii* (see above). In Victoria, the name *L. lineare* has mostly been applied to the taxon now called *L. curtisiae* K.L. Wilson & D.I. Morris (Wilson & Morris 1993). This informal group of species is keyed out under *L. gunnii*.

L. tetragynum was distinguished on the basis of its 4-fid styles but otherwise matches more robust specimens of *L. laterale* (under which Bentham (1878) placed it as a variety, var. *majus* Benth.). Here it is treated as a synonym of *L. laterale*, pending further investigation of that variable species. The 4-fid style seems to be rare.

10. *Ptilanthelium* becomes *Ptilothrix*

The monotypic genus currently known as *Ptilanthelium* needs a new name. *Ptilanthelium* was described by Steudel (1855: 166) with one species, *P. chauvinii* Steud. Later, Kükenthal (1939: 215–216) transferred to the genus *Carpha densta* R. Br. (as *P. densum* (R. Br.) Kük., with *P. chauvinii* as a synonym under that name) and *C. graciliceps* C.B. Clarke (as *P. gracilipes*). The latter species was subsequently transferred (Wilson 1981: 186) to *Mesomelaena*, leaving *Ptilanthelium deustum* as the sole species in the genus. Kükenthal (1939) discussed discrepancies between Steudel's descriptions of *Ptilanthelium* and specimens of *P. densum* but stated that the type of *P. chauvinii* could not then be found in *P.* Thus he did not recognise the problem with the application of the latter name.

However, I have now seen two sheets of the type collection of *P. chauvinii* in P and can explain the discrepancies that puzzled Kükenthal. Steudel's descriptions of the genus and species, and the two sheets of the type collection of *P. chauvinii*, are all referable to *Schoenus turbinatus* (R. Br.) Roem. & Schult. This makes the name *Ptilanthelium* a synonym of *Schoenus* and leaves *Carpha densta* in need of a new generic name.

Steudel's generic description mentions (1) the perianth as being 5-parted, which presumably is a miscounting of the 6 hypogynous bristles found in *Schoenus turbinatus*

(*Carpha deusta* has 3); and (2) the perianth as being half the length of the style, which is also applicable to *S. turbinatus* rather than *Carpha deusta*. Steudel's specific description of *P. chauvinii* mentions ciliolate glumes, which applies to *S. turbinatus* but not to the glabrous-glumed *Carpha deusta*.

Steudel obviously did not connect his new genus with *Schoenus turbinatus*, which he included in his treatment (1855: 161) as *Chaetospora turbiuata*. His wording implies that he had not seen any authenticated specimens of *Schoenus turbinatus* and therefore it is perhaps not surprising that he described specimens of this superficially somewhat odd-looking species of *Schoenus* as a new genus *Ptilanthelium*. Indeed, the only specimens of *Schoenus turbinatus* that I found in P were two sheets labelled 'D'Urville, Port Jackson', both previously in the Herbarium of the University of Caen (CN) and here regarded as the type of *Ptilanthelium chauvinii*.

In his paper Steudel also mentions *Ptilanthelium deustum* (as *Carpha deusta*, p. 159). He did not cite specimens for *Ptilanthelium deustum* but I have seen two specimens of this species in his herbarium in P: Sieber 25 and Lhotsky s.n.

The species originally named as *Carpha deusta* R. Br. is distinctive and should be separated from *Carpha*, as was recognized by Kükenthal (1939). Therefore, I here propose the name *Ptilothrix* for the monotypic genus *Ptilanthelium* auct. non Steudel, and make the combination for *Carpha deusta* under that genus.

Ptilothrix K.L. Wilson, gen. nov.

[*Ptilanthelium* auct. non Steud.]

Herbae perennes, culmis enodosis. Folia ligula membranacea instructa. Inflorescentia obconica vel flabelliformis, bracteis involucre grandis; spiculae numerosae, aggregatae, 1–2-floribus. Glumae distichae, 3–5 ad basin steriles. Setae hypogynae 3, plumosae antrorse prope basin, scaberrulae apicem versus. Stamina 3. Stylus 3-fidus, basin versus incrassatus, ad maturitatem rostrum elongatum rigidumque cum achenio continuum persistens formans. Achenium trigonum, 3-costatum.

TYPE AND ONLY SPECIES: *P. deusta* (R. Br.) K.L. Wilson (*Carpha deusta* R. Br.).

Erect, tufted perennials. Culms rigid, nodeless. Leaf blades developed; ligule pallid, membranous. Inflorescence obconical or fan-shaped in outline, with numerous spikelets clustered within large involucre bracts with smooth, black-brown sheathing bases with broad hyaline margins, the enlarged sheaths as long as the spikelets; the lowest bracts with leaf-like blades exceeding inflorescence. Spikelets 1–2-flowered. Glumes distichous, 3–5 lowest ones empty, uppermost glume reduced. Hypogynous bristles 3, antrorsely plumose below, scabrous above for most of their length. Stamens 3. Style 3-fid, thickened, forming an elongated, pallid, persistent, rigid beak fused with nut and about as long as it. Nut trigonous, with 3 pale ribs.

DISTRIBUTION: Monotypic, endemic to south-eastern Australia.

DERIVATION OF NAME: From the Greek *ptilon*, a soft feather or down, and *thrix*, *trichos*, a hair, referring to the hypogynous bristles, which are plumose below and hair-like (and minutely scabrous) above. The gender is feminine.

NOTES: This genus is separable from *Carpha*, which should properly be restricted to the four higher altitude species *C. alpina*, *C. curvata*, *C. nivicola* and *C. rodwayi*. *Ptilothrix* differs in various features, including having a leaf ligule (membranous). It has a perianth of three bristles, which are antrorsely plumose only at the base, and scabrous for most of their length, unlike the six bristles of *Carpha*, which are antrorsely plumose for most of their length (scabrous near the apex). The elongated style-base of *Ptilothrix* is thickened, unlike that of *Carpha*, which is rigid but remains relatively

slender. The inflorescence of *Ptilothrix* consists of numerous spikelets clustered within two very large involucre bracts, with the bases of the bracts very broad and about as long as the spikelets, whereas that of *Carpha* has 1–3 clusters each of 2–20 spikelets, with one or two involucre bracts that are similar to the leaves in form.

Ptilothrix deusta (R. Br.) K.L. Wilson, comb. nov.

BASEONYM: *Carpha deusta* R. Br., Prodr.: 230 (1810).

TYPE: NEW SOUTH WALES: Port Jackson, R. Brown (Bennett 6021), 1802–1805; lecto (here chosen) BM; isolecto BM, K. The sheet selected as lectotype bears an original label in Brown's script and more complete material than the other sheet in BM, which is said to be that selected by Brown for the Public Collection.

DISTRIBUTION AND ECOLOGY: Grows along the coast and tablelands from south-east Queensland south to near Eden on the South Coast of New South Wales; in seasonally wet sites in heath and dry sclerophyll forest and woodland, on sandy soils.

Schoenus turbinatus (R. Br.) Roem. & Schult.

Ptilanthelium chauvinii Steud., synonym. nov. (Steudel 1855: 167). TYPE CITATION: 'Ex Hrbo Urville communc. Chauvin. Port Jacks[on]'. TYPE: NEW SOUTH WALES: Port Jackson, D'Urville; lecto (here chosen) P; probable isolecto P. It is usual to regard the holotype of Steudel's species as being the sheet labelled as belonging to his personal herbarium. However, I could not find such a sheet for *Ptilanthelium chauvinii* and therefore select as lectotype the sheet ex CN that is annotated by Steudel as *P. chauvinii*. The other sheet ex CN bears a printed label 'Dumont D'Urville, Australie'.

11. Schoenus

Combinations not made by Poiret

Various species now accepted in *Schoenus* were described by Robert Brown (1810) in the genus *Chaetospora*. The combinations for these names in *Schoenus* have generally been accepted as having been made by Poiret (1811). However, closer reading of Poiret's text has led to the conclusion that, under the provisions of Article 33.1 of the International Code of Botanical Nomenclature, only the combination for *S. lanatus* is valid there.

Poiret (1811) lists and discusses all the species of *Schoenus* as recognised by him, then he follows this with a list (pp. 250–252) of 'Espèces de la Nouvelle-Hollande, mentionnées par Rob. Brown'. The implication from that heading and from the use of italics for the following text (except for *Schoenus lanatus*) is that Poiret had not seen specimens of these species and was merely citing Brown's taxa. This interpretation is supported by the text for each species (except for *S. lanatus*) being nearly verbatim from Brown (1810). The exception, *Schoenus lanatus* Labill., differs in being in the same style as the earlier species of *Schoenus* accepted by Poiret, which probably reflects the availability of Labillardière's specimens to Poiret. However, all the other taxa on pp. 251–252 under the *Chaetospora* subheading are listed in the form '*Schoenus* (*chaetospora* [sic] ...)' with the epithet associated with *Chaetospora* but NOT unequivocally associated with *Schoenus* as was done by Poiret for earlier species. In the terms of Article 33.1, this does not constitute valid publication of these combinations (L.A.S. Johnson, F.A. Stafleu & J.A. Leussink, pers. comm.). The last four species in Poiret's list from Brown (1810: 233) are now regarded as belonging to other genera, under the following names: *Gymnoschoenus sphaerocephalus* (R. Br.) Hook. f., *Gymnoschoenus anceps* (R. Br.) Nees, *Mesomelaena tetragona* (R. Br.) Benth., *Mesomelaena stygia* (R. Br.)

Nees. For the others, the first valid publication of the relevant combinations under *Schoenus* was by Roemer & Schultes (November 1817), as follows:

Schoenus curvifolius (R. Br.) Roem. & Schult. (1817: 76).

BASIONYM: *Chaetospora curvifolia* R. Br. (1810: 232).

Schoenus turbinatus (R. Br.) Roem. & Schult. (1817: 76).

BASIONYM: *Chaetospora turbinata* R. Br. (1810: 232).

Schoenus brevisetis (R. Br.) Roem. & Schult. (1817: 76).

BASIONYM: *Chaetospora brevisetis* R. Br. (1810: 232).

Schoenus deformis (R. Br.) Roem. & Schult. (1817: 76).

BASIONYM: *Chaetospora deformis* R. Br. (1810: 232).

Schoenus pedicellatus (R. Br.) Roem. & Schult. (1817: 76).

BASIONYM: *Chaetospora pedicellata* R. Br. (1810: 232).

Schoenus calostachyus (R. Br.) Roem. & Schult. (1817: 77).

BASIONYM: *Chaetospora calostachya* R. Br. (1810: 233).

Schoenus paludosus (R. Br.) Roem. & Schult. (1817: 77).

BASIONYM: *Chaetospora paludosa* R. Br. (1810: 233).

Schoenus apogon Roem. & Schult. (1817: 77).

Based on *Chaetospora imberbis* R. Br. (1810: 233). *Schoenus imberbis* R. Br. (1810: 231) is a distinct species.

Schoenus maschaliuus Roem. & Schult. (1817: 77).

Based on *Chaetospora axillaris* R. Br. (1810: 233). *Schoenus axillaris* Lam. is the separate taxon now known as *Rhynchospora axillaris* (Lam.) Britton (Kükenthal 1938: 185).

Schoenus nitens (R. Br.) Roem. & Schult. (1817: 77).

BASIONYM: *Chaetospora nitens* R. Br. (1810: 233).

Schoenus centralis Latz

(Latz 1979: 348). TYPE: NORTHERN TERRITORY: Napperby Station, P.K. Latz 5945, 9 May 1975; holo NT; iso AD n.v., BRI n.v., CANB n.v., K, L n.v., NSW.

This slender annual species was based on a single specimen from Central Australia. Since then, Peter Latz has collected another specimen, also in the south-western part of the Northern Territory. In preparing a treatment of the genus for the *Flora of New South Wales*, three specimens of *S. centralis* from this State have been found (Figure 8d), one previously determined as *S. late laminatus* Kük., the others more recent, undetermined collections. In addition, a specimen has been collected in southern Queensland (Canning 6042 & Rimes; original determined by J. Ward at CBG).

These extra specimens generally match the two from the Northern Territory. However, the nut often has the distinctive wing on the angles not just present near the apex of the nut but extending all the way down the sides (Figure 8a, b). On any one plant, nuts showing a range of development can often be found. The glumes are more strongly tinged red-brown (the type has only small red-brown patches on the otherwise stramineous glumes) in these four specimens, and the nuts in the three New South Wales specimens are rather broader (about 0.8 mm diam. compared to 0.5–0.6 mm in the Northern Territory and Queensland specimens). The specimen from Howell is much smaller than the others but the spikelet details match.

The species resembles *S. odontocarpus* F. Muell. from south-western Western Australia in its winged nut (the wing seems to be always restricted to near the apex in the

latter). However, *S. odontocarpus* is smaller in its parts and differs in the surface pattern on its nut: each face is reticulate-foveate with two to four pits per row. In *C. centralis*, the nut is also reticulate-foveate but the pattern is much smaller and there are about six to ten faint pits per row, with the epidermal cells often apparently with convex outer walls before they collapse to give the pitted look.

S. centralis differs from *S. latelaminatus* and *S. apogon* Roem. & Schult., two allied species also found in western New South Wales, not only in its winged nut but also in its more open inflorescence, with the spikelets mostly long-pedicellate, even in the small specimen from Howell. It further differs from *S. latelaminatus* in having smaller glumes (3.0–4.5 mm long versus 5.0–7.5 mm in the latter). From *S. apogon*, it differs in not having hypogynous bristles.

SPECIMENS SEEN: QUEENSLAND: Maranoa: 87 km from Bollon toward Cunnamulla, *Canning 6042 & Rimes*, 16 Oct 1983 (CBG n.v., BRI n.v., NSW, NY n.v.).

NEW SOUTH WALES: North Western Slopes: Howell, *K. Wilson 6985*, 28 Nov 1986 (NSW). North West Plains: Bruxner Highway, 4.9 km E of Yetman, *Coveny 11663 & P. Wilson*, 1 Nov 1983 (NSW); Mulwarrina Creek, Mulgowen Station, 35 miles [54 km] by road S of Bourke, *Constable 4531*, 17 Oct 1963 (NSW).

NORTHERN TERRITORY: Gorge west of Talipata Gorge, *Latz 9934*, 17 July 1984 (NSW ex NT).

Schoenus evansianus K.L. Wilson, sp. nov.

Affinis *S. calytrato*, sed culmis elatioribus, glumis pluribus, appendice antherae longiore, nuce ad apicem hispidula, differt.

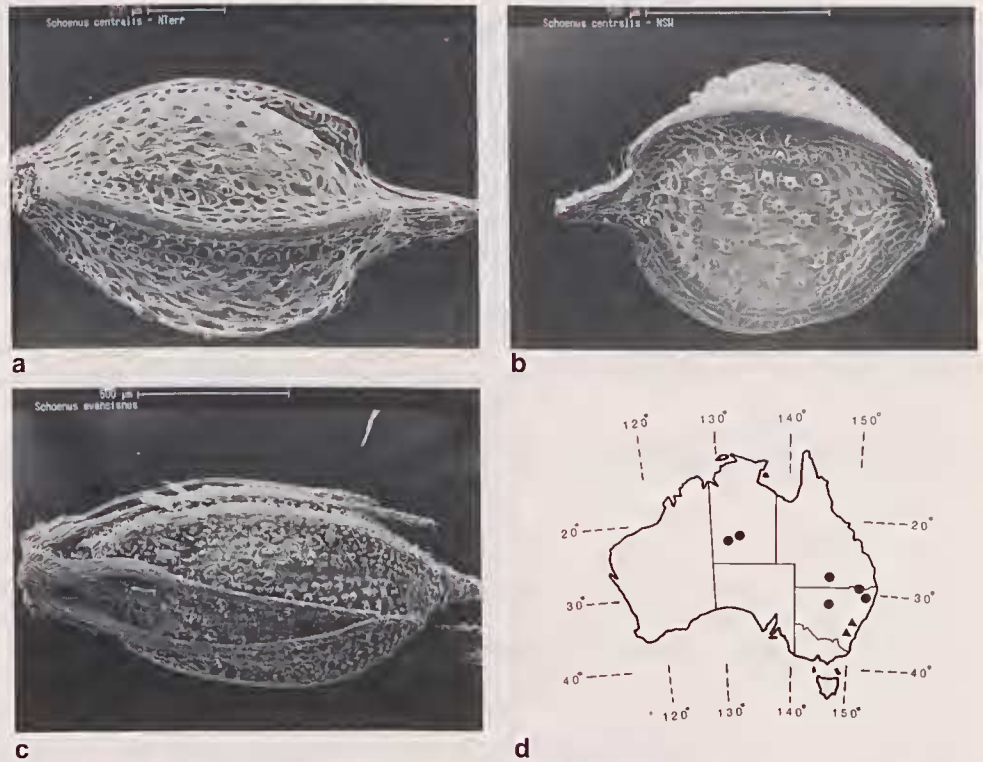


Figure 8. *Schoenus centralis*. a, Nut with wings developed only near apex (from isotype in NSW); b, nut with wings evenly developed down body of nut (from *Constable 4531*). *S. evansianus*. c, Nut (from holotype). d, Distribution of *S. centralis* (circle) and *S. evansianus* (triangle).

TYPE: NEW SOUTH WALES: Central Tablelands: c. 1 km SE of Echo Head on path to Kanangra Plateau, K.L. Wilson 1709, 16 Jan 1977; holo NSW; iso CANB, K, P.

Small, shortly rhizomatous perennial. Culms very slender, erect, smooth, finely striate, nodeless, 4–12 cm high, 0.2–0.4 mm diam. Leaves basal, with blade to 12 (rarely to 23) cm long, 0.3–0.4 mm wide, slender but channelled; sheath red-brown to stramineous, striate, ± shining, mouth glabrous; ligule present. Inflorescence consisting of 1–4 spikelets in 1 or 2 clusters, 1–4 cm long; lowest involucre bract leaf-like, to 5 cm long. Spikelets compressed, narrow-ovate, acute, 1–2-flowered, 3.5–5.5 mm long, with rachilla elongated and zig-zag around fertile flowers. Glumes distichous, 4–6 with lowest 2–4 empty, narrow-ovate, acute, stramineous to red-brown, ± shining, with glabrous margins; fertile glumes 3.0–4.0 mm long. Bristles 6, not plumose, about as long as nut. Stamens 3; anthers 1.5–2.0 mm long excluding the apical appendage that is 0.3–0.5 mm long. Style 3-fid. Nut trigonous, ellipsoid, prominently 3-ribbed, minutely reticulate, glistening or shining, whitish with hispidulous red-brown apex or evenly red-brown, 1.2–1.4 mm long, 0.4–0.7 mm diam. Figure 8c.

DISTRIBUTION AND ECOLOGY: Known from the southern Blue Mountains (Kanangra Walls area) south to the Budawang Range, New South Wales (Figure 8d). Grows in damp, sheltered areas associated with sandstone outcrops and streams.

DERIVATION OF EPITHET: The species is named for Obed David Evans (1889–1975), as is *Lepidosperma evansianum* K.L. Wilson (q.v.).

NOTES: The species appears closest to *S. calyptratus* Kük., a species restricted to alpine and subalpine areas of south-eastern Australia. It differs most obviously from that species in its habit. It has a short, slender rhizome and forms small, loose clumps. As with *S. calyptratus*, the leaves are longer than the culms but generally no more than 1.5 times as long (about twice as long in *S. calyptratus*). The culms themselves are generally longer (4–12 cm high versus no more than 2.5 cm in *S. calyptratus*). The spikelets and glumes are much the same in the two species but *S. evansianus* mostly has more glumes in a spikelet (4–6 glumes versus 3 or 4 in *S. calyptratus*). Length of the apical appendage on the anther seems to be specifically consistent in this genus, although care must be taken in measuring since the appendage is often fragile and breaks off easily. In the new species, the appendage is longer than in *S. calyptratus* (0.3–0.5 mm long versus no more than 0.1 mm). The nut of *S. evansianus* is slightly more slender than that of *S. calyptratus*, lacks the small stipe found in the latter and, unlike the latter, is hispidulous near the apex.

SPECIMENS SEEN: NEW SOUTH WALES: South Coast: above Tianjara Falls, c. 5 km E of Sassafras, 530 m, Johnson 8033, 29 Mar 1975 (NSW); 5 km SSE of Mt Tianjara, 590 m, Adams & Pajmans 3790, 26 Mar 1981 (NSW ex CANB). Central Tablelands: Kanangra Tops, 10 miles [16 km] SE of Jenolan Caves, Constable 5833A, 22 May 1965 (NSW); Kanangra Walls, 23 km SW of Jenolan Caves, Coveny, 15 Apr 1967 (NSW). Southern Tablelands: 1.35 km ESE of Nerriga, Pickard, 6 Sep 1971 (NSW).

Schoenus laevigatus W.V. Fitzg.

(Fitzgerald 1903: 111). TYPE: WESTERN AUSTRALIA: Bayswater, W.V. Fitzgerald, Nov 1901; lecto (here chosen) NSW; isolecto PERTH (ex herb. W.E. Blackall). These collections both bear field labels in Fitzgerald's script, but the NSW label is more detailed. The PERTH sheet has a single tuft with only a few spikelets; the NSW sheet includes more material.

S. brachyphyllus F. Muell. [1875: 29, nom. provis.] ex J.M. Black, *synon. nov.* (Black 1929: 677). TYPE: SOUTH AUSTRALIA: Mount Lofty Range, F. Mueller, 1848; holo MEL.

As here delimited, this species occurs in western Victoria, southern South Australia and the south-west of Western Australia.

Black (1929: 677) pointed out that *S. brachyphyllus* was 'probably the same as the West Australian *S. laevigatus* W.V. Fitzg.' Although Fitzgerald's specimens have dark yellowish brown leaf sheaths rather than the more common dark red-brown sheaths, they still have the overlapping mouth to the leaf sheath that is characteristic of this species (and enables ready distinction of this from *S. brevifolius* R. Br.).

Schoenus lepidosperma, *S. tenuissimus* and *S. pachylepis*

Blake (1943: 69) separated *S. pachylepis* S.T. Blake from *S. tenuissimus* Benth., characterising his new species as having:

- (1) a more robust habit;
- (2) a very short rhizome that is not creeping;
- (3) larger spikelets that are always glabrous;
- (4) thicker glumes, the lower glumes keeled with a thickened callus near the apex;
- (5) an oblong-cylindrical nut (not elliptic);
- (6) obtuse hypogynous scales.

Features (1) and (2) are generally distinctive. However, all the characters now seem less distinctive than they did to Blake with the limited material then available to him. Feature (3) is partly true: the spikelets are indeed longer (15–22 mm long versus 8–11(–14) in *S. tenuissimus*) and often slightly broader (2–3 mm wide in side view versus 1.8–2.5 mm), but the glumes are often minutely hairy at the apex as in *S. tenuissimus*. Equally, Blake himself says that the glumes in some South Australian specimens of *S. tenuissimus* are glabrous (not seen by me). Similarly with (4): glume texture may be somewhat thicker in *S. pachylepis* but not significantly so; the lower (sterile) glumes do usually have a somewhat more marked keel and thickening just behind the apex. Feature (5) is true to the extent that *S. pachylepis* does have an elongated, parallel-sided nut, but that of *S. tenuissimus* is not strongly elliptic in outline while some examples are parallel-sided. The distinctive point is perhaps that the nut of *S. tenuissimus* is shorter and narrower in the body than that of *S. pachylepis* (3.0–3.5 mm long (this includes stipe) versus 4.2–5 mm in *S. pachylepis*, and 1.8–2.0 mm diam. versus 2.0–2.5 mm). Feature (6) is more or less true: the hypogynous scales are usually more obtuse in *S. pachylepis*, but they can occasionally be acute. Additionally, the scales in *S. pachylepis* are relatively broader and shorter than in *S. tenuissimus*, reaching only to about the top of the stipe (reaching about one third to half-way up the body of the nut in *S. pachylepis*). However, there are relatively few nut-bearing specimens and more are needed to be sure on these points.

The most constant features are size differences in floral parts (Table 1). In addition, the rhizome in *S. tenuissimus* is more or less constantly elongated, but there are no consistent differences in leaf sheath colour or culm surface. Plants referable to *S. pachylepis* are generally more robust, and even if a plant of this has slender culms, the floral parts are still larger than in typical *S. tenuissimus*. The farther north one goes in New South Wales and into south-eastern Queensland, the greater the tendency to have two or three spikelets in the inflorescence; south from about Wollongong there is always 1 spikelet per inflorescence (but there are relatively few specimens from the middle part of the South Coast so this may be no more than an artifact of limited collecting). Glumes in *S. pachylepis* tend to be more often evenly dark-coloured than in *S. tenuissimus* but this is not by any means a consistent difference. What does seem reasonably consistent is the width of the hyaline margin to the glumes, which is usually narrower in *S. pachylepis* than in *S. tenuissimus* (≤ 0.1 (rarely to 0.2) mm wide versus 0.1–0.2 mm). Anthers are much longer in *S. pachylepis* (6.3–9 mm long versus

3.3–4.5 mm in *S. tenuissimus*) with a very long apical appendage (0.8–1.8 mm long versus 0.2–0.5 mm).

The distributions of the two taxa overlap in the coastal heathlands of East Gippsland. Although immature, specimens such as *Albrecht 634* and *Albrecht 1050* from near the Victorian–New South Wales border seem intermediate in size of parts, width of glume margins and degree of rhizome development.

The features are not distinctive enough to warrant specific separation, while the geographic pattern of variation suggests subspecies as the appropriate rank.

The name for the species has to change because the basionym of *Schoenus tenuissimus*, *Chaetospora tenuissima* Hook. f., is illegitimate, being a later homonym of *C. tenuissima* Steud. (which is based on a specimen of *Schoenus apogon* ('Bobat [Hobart] Town, herb. *Urville*'; holo P). The earliest available legitimate name is *Chaetospora lepidosperma* F. Muell., and the combination in *Schoenus* is here made for this species, as well as that for subspecies *pachylepis*.

Table 1. Features that distinguish *S. lepidosperma* subsp. *lepidosperma* and subsp. *pachylepis*

	subsp. <i>lepidosperma</i>	subsp. <i>pachylepis</i>
Plants	Generally more slender (even if culms are as much as 35 cm high)	More robust usually
Habit	Creeping rhizomatous (but culms still close together on rhizome)	Tufted to very shortly rhizomatous
Culms	0.3–0.5(–0.8) mm diam.	0.5–1.2 mm diam.
Inflorescence	1 spikelet	1–3 spikelets
Spikelets	8–11(–14) mm long, 1.8–2.5 mm wide in side view	15–22 mm long, 2–3 mm wide in side view
Glumes	Always mixed in colour (straw-coloured, red-brown, very dark in red-brown)	Often evenly dark-coloured (but equally may be mixed coloration)
Glume margins	Hyaline, 0.1–0.2 mm wide	Narrowly hyaline, usually ≤ 0.1 mm wide
Lower sterile glumes	With keel not well-defined	With \pm well-defined keel and thickened at least near apex
Fertile glumes	8–11 mm long	13–16 mm long
Hypogynous scales	Acute to acuminate, relatively narrow, reaching 1/3–1/2 way up body of nut	Obtuse (rarely acute), relatively very broad, scarcely reaching to top of stipe
Anthers (excluding apical appendage)	3.3–4.5 mm long	6.3–9 mm long
Apical appendage on anther	0.3–0.5 mm long	0.8–1.8 mm long
Nut	Slightly convex-sided in outline but often close to cylindrical 3.1–3.5 mm long (including stipe), 1.8–2.0 mm diam.	Oblong-cylindrical 4.2–5 mm long (incl. stipe), 2.0–2.5 mm diam.

Schoenus lepidosperma (F. Muell.) K.L. Wilson, *comb. nov.*

BASIONYM: *Chaetospora lepidosperma* F. Muell., Pap. Proc. Roy. Soc. Tasmania for 1868: 12 (1869).

Based on *Chaetospora tenuissima* Hook. f. (Hooker 1858: 81, pl. 140B); nom. illeg., non Steud. (1855: 162). TYPE CITATION: 'Lepidosperma tenuissima Muell. in Herb. Hook. (Gunn 1416). Hab. Moist sandy places near Hobart, Gunn. Distrib. South-eastern Australia: Wilson's Promontory, Mueller.'

TYPE: TASMANIA: Hobart Town, Gunn 1416, Oct 1840; lecto (here chosen) K; probable iso NSW. The Gunn specimen is designated as lectotype rather than holotype since Hooker mentions a Mueller specimen (Wilson's Promontory, Mueller, 1853; K, MEL) under 'Distribution'. The Mueller specimen in K is not annotated by Hooker as *Chaetospora tenuissima*, whereas the Gunn specimen is so annotated and bears sketches of the floral parts by Hooker.

Schoenus tenuissimus (Hook. f.) Benth. (Bentham 1878: 365).

Mueller did not capitalise 'lepidosperma' but he did indicate that the species had hypogynous scales resembling those found in *Lepidosperma*. Hence the epithet is here regarded as a noun in apposition rather than an adjective, and the ending is invariable.

Schoenus lepidosperma (F. Muell.) K.L. Wilson subsp. **pachylepis** (S.T. Blake) K.L. Wilson, *comb. et stat. nov.*

BASIONYM: *Schoenus pachylepis* S.T. Blake, Proc. Roy. Soc. Queensland 54: 69 (1943).

TYPE: QUEENSLAND: Foot of Buderim Mountain, S.T. Blake 7191, 9 Jan 1935; holo BRI.

This subspecies extends from south-east Queensland through coastal New South Wales to Sunday Island in the Gippsland region of Victoria. The type subspecies extends from East Gippsland (and may occur just over the New South Wales border in the Eden area) south to Tasmania and the South-Eastern region of South Australia. The two subspecies can be distinguished as follows:

- 1 Spikelets 8–11(–14) mm long; fertile glumes 8–11 mm long; anthers 3.3–4.5 mm long excluding the apical appendage that is 0.3–0.5 mm long; hypogynous scales acute to acuminate, narrow, reaching 1/3–1/2 way up body of nut; nut 3.1–3.5 mm long (including stipe), 1.8–2.0 mm diam.; shortly rhizomatous; culms slender, mostly 0.3–0.5 mm diam. subsp. *lepidosperma*
- 1* Spikelets 15–22 mm long; fertile glumes 13–16 mm long; anthers 6.3–9.0 mm long excluding the apical appendage that is 0.8–1.8 mm long; hypogynous scales obtuse or rarely acute, very broad, scarcely reaching to top of stipe; nut 4.2–5 mm long (including stipe), 2.0–2.5 mm diam.; tufted (very shortly rhizomatous); culms relatively coarse, 0.5–1.2 mm diam. subsp. *pachylepis*

Schoenus nitens (R. Br.) Roem. & Schult.

S. nitens var. *major* Ewart & J. White (1910: 326), *synon. nov.* TYPE: VICTORIA: Mt Hunter, National Park, Wilson's Promontory, Andas & St John, Oct 1909; holo MEL.

This variety is based on a large specimen of *S. nitens* and is neither distinctive nor worth formal recognition. The species varies considerably in size depending on habitat, in particular on extent of exposure to salt spray and wind behind beaches.

12. *Uncinia*

Uncinia nemoralis K.L. Wilson, sp. nov.

U. rupestris affinis sed foliis longioribus, utriculis bracteas subaequantibus, differt.

TYPE: NEW SOUTH WALES: Northern Tablelands: Barrington Tops, L. Fraser & J. Vickery, 7 Jan 1934; holo NSW 38410; iso BRI, L, MEL, NT, P, PH, WELT.

Erect, tufted perennial with very short rhizome. Culms triquetrous to trigonous, occasionally scabrous near apex, very slender, 20–55 cm high, 0.3–0.5(–0.7) mm diam. Leaves basal, flat, exceeding culms, 1.6–2.2 mm wide. Inflorescence spike-like with spikelets not densely crowded on the axis, 4–6 cm long, including male portion 8–14 mm long. Spikelets unisexual, 1-flowered. Female bracts deciduous, acute, straw-coloured, membranous, faintly few-nerved, 3.5–4 mm long. Stamens 3; anthers c. 1.8 mm long. Style 3-fid. Utricles trigonous, narrow-ellipsoid, scarcely spreading, glabrous, smooth, yellow-brown, about as long as subtending bract, 4.7–6 mm long, 1–1.5 mm diam.; rachilla protruding from utricle for 5–6.5 mm, strongly hooked at apex. Nut trigonous, narrow-ellipsoid, yellow-brown, glistening, minutely pusticulate, c. 3 mm long, 1–1.3 mm diam. Figure 9a.

DISTRIBUTION AND ECOLOGY: Grows on the higher coastal ranges south from near Wauchope to the Gippsland region of Victoria; in rainforest and tall sclerophyll forest, often along creeks.

DERIVATION OF EPITHET: From the Latin *nemus*, *nemoris*, a wood, referring to the occurrence of the species in forests.

NOTES: The species belongs to section *Uncinia* series *Compactae*, which includes a number of morphologically very similar forest-dwelling species in Australia and New Zealand (Hamlin 1958). It differs from *U. rupestris* Raoul of New Zealand in having leaves about as long as the inflorescence (shorter in *U. rupestris*), and the utricle as long as or slightly shorter than the subtending bract (equalling or exceeding it in *U. rupestris*). The plants of *U. rupestris* are often shorter. The inflorescence of *U. nemoralis* is similar to those of the New Zealand species *U. gracilentia* Hamlin and *U. zotovii* Hamlin, but *U. gracilentia* differs in having rather shiny leaf sheaths, while the leaves are broader in *U. zotovii*.

SELECTED SPECIMENS SEEN: NEW SOUTH WALES: North Coast: Thumb Road, Mt Boss State Forest, Coveny 10880, 5 Nov 1980 (NSW, CANB, GENT, MEL, MO, PRE). South Coast: crossing of Cochrane Dam road over Rutherford Creek, near Pipers Lookout, Brown Mountain, Thiele, 11 Apr 1981 (NSW); Brown Mountain Creek, Bemboka State Forest, 8 km NW of Bemboka, Nunink 381, Mar 1982 (NSW). Northern Tablelands: Gloucester Tops, Coveny, Jan 1967 (NSW 96259).

VICTORIA: East Gippsland: Coast Range Road, 1 km SW of Hensleigh Creek, 19.4 km SW of Bendock, Forbes 370, May 1980 (MEL, NSW); Alfred National Park, Finck & Beaglehole 32539, Dec 1969 (MEL, NSW); Mt Drummer, below Princes Highway, c. 12 miles [20 km] E of Cann River, Melville 2834, Wakefield & Hunter, Jan 1953 (K, MEL, NSW).

Uncinia sulcata K.L. Wilson, sp. nov.

U. compactae affinis sed foliis sulcatis crassioribus angustioribusque differt.

TYPE: NEW SOUTH WALES: Southern Tablelands: Rawson Pass, Kosciusko National Park, alt. 2091 m, R.G. Coveny 5367, 19 March 1974; holo NSW; iso C, CANB, CHR, K, MEL, NY, P.

Tufted perennial with short rhizome. Culms trigonous, stiff, smooth, 10–15 cm high, 1–1.3 mm diam. Leaves basal, stiff, erect, thickly U-shaped, often longer than culms,

1–1.7 mm wide. Inflorescence spike-like with spikelets \pm densely crowded on the axis, 1.5–3 cm long including male portion 5–14 mm long. Spikelets unisexual, 1-flowered. Female bracts deciduous, acute, chartaceous, straw-coloured, 5.2–6.7 mm long. Stamens 3; anthers c. 2 mm long. Style 3-fid. Utricles trigonous, ovoid to ellipsoid, gradually narrowing to base, acuminate to oblique mouth, glabrous, smooth and obliquely spreading at maturity, yellow-brown, shining, shorter than subtending bract, 4.5–5.5 mm long, 1.8–2.1 mm diam.; rachilla protruding from utricle for 4–5.5 mm, strongly hooked at apex. Nut ellipsoid, dark brown, glistening, minutely pusticulate, c. 3 mm long, c. 2 mm diam. Figure 9b.

DISTRIBUTION AND ECOLOGY: Restricted to very high altitude areas about Mt Kosciusko, New South Wales, and Mt Bogong in Victoria; in alpine grassland.

DERIVATION OF EPITHET: From the Latin *sulcus*, a furrow, referring to the channelled leaves.

NOTES: *U. sulcata* belongs to section *Uncinia* series *Compactae* (Hamlin 1958). It differs from *U. compacta* R. Br., which grows in the same habitat, in its narrower (to 1.7 mm wide) but thicker-textured leaves, which are U-shaped and often exceed the inflorescences (leaves more or less flat and to 3.3 mm wide in *U. compacta*, and generally about as long as the inflorescence). The culms of the new species are trigonous and smooth (triquetrous and often scabrous near the apex in *U. compacta*) and often shorter than in *U. compacta*. It differs from *U. nervosa* Boott in leaf cross-section, which is even thicker and plano-convex to crescentiform in *U. nervosa*.

SELECTED SPECIMENS SEEN: NEW SOUTH WALES: Southern Tablelands: Merritts Creek Valley, Kosciusko National Park, 1950 m, *Thompson 4502*, 28 Feb 1983 (NSW); c. 1 km NNE of Mt Kosciusko on Lake Albina track, *Wilson 2029*, 2 Feb 1979 (NSW); Mt Kosciusko–Lake Albina track, *Gray & Totterdell 6327*, 20 Feb 1969 (CANB, HO, MEL, NSW, P); near Snowy River bridge below Seamans Hut, Kosciusko area, *Gray et al. 6597*, 25 Feb 1972 (CANB); Lake Cootapatamba, Kosciusko [areal], 6500 ft [2160 m], *Johnson & Constable*, 24 Jan 1951 (NSW 19531).

VICTORIA: Bogong High Plains, Spion Kopje, *Beauglehole 22316*, 23 Jan 1967 (MEL, NSW).

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